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SOME OBSERVATIONS ON AORTIC ANEURISMS, WITH A REPORT OF THIRTY-FOUR CASES, WITH AUTOPSIES.[1]

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The observations recorded in this paper are based upon thirty-two cases of aneurism of the aorta and two cases of spontaneous rupture of the aorta without previous dilatation. With a few exceptions, all of the cases have fallen under my observation within a period of eighteen months, and most of them were seen first on the autopsy table.

It has seemed to me that aneurismal dilatation of the aorta is a more common affection than is generally supposed, and I desire in this paper to call attention to this and some other features of the disease that have not been sufficiently emphasized.

It is not the intention to take up the clinical history of aortic aneurism, for, as has been noticed, many of these cases were first seen at the autopsy.

Of the series of 34 cases, 30 were either fusiform or saccular dilatations of the aorta, with death from rupture or other causes in each. Of the remaining 4, 2 were dissecting aneurisms and 2 were simple ruptures of the aorta. No cases have been included in the series in which autopsies were not performed. Excluding the dissecting aneurisms and the ruptures of the aorta, in 26 of the 30 remaining cases the aneurisms were situated on the arch of the aorta and on the thoracic aorta; the other 4 were of the abdominal aorta.

[1] Read before the Section of Practice of the New York Academy of Medicine, 1888.

Cases of Aortic Aneurism.

No.	Variety.	Situation.	Where ruptured.	Age	Sex	Occupation and habits.	History of aneurism.
1	Large, saccular,	Arch, ascending,	Pericardium,	43	M.	Laborer, drinker,	No.
2	Saccular,	Arch, one inch above valves,	Pericardium,	26	M.	Bookkeeper, drinker,	No.
3	Saccular,	Arch, in the sinuses above valves,	Pericardium,	40	M.	Officer U.S.A. drinker,	Yes.
4	Fusiform,	Arch, ascending,	Pericardium,	50	F.	Domestic,	No.
5	Saccular,	Arch, just above valves,	Pericardium,	35	M.	Clerk,	No.
6	Saccular, double,	Arch, just above valves,	Pericardium,	50	M.	Clerk,	No.
7	Fusiform,	Arch, ascending,	Pericardium, pin-hole perf.	30	M.	Watchman,	No.
8	Saccular,	Arch, descending and transverse,	Left pleura and lung,	31	M.	.....	No.
9	Fusiform,	Arch, just above valves,	Pericardium,	28	M.	Confectioner,	Cardiac symptoms.
10	Saccular,	Arch, transverse and descending,	Left bronchus and lung,	50	M.	Laborer, drinker,	Yes.
11	Saccular,	Arch, transverse and descending,	Left bronchus,	47	M.	Carpenter, drinker,	Yes.
12	Saccular,	Arch, ascending and transverse,	Pericardium,	67	M.	Coachman (negro),	No.
13	Saccular,	Arch, descending,	Spinal canal,	...	M	.....	Yes.
14	Dissecting,	Whole arch and thoracic aorta.	Pericardium,	...	M.	.....	Not known.
15	Saccular,	Arch, ascending,	Pericardium,	...	M.	Laborer,	No.
16	Saccular and double fusiform,	Arch, and thoracic aorta,	Right pleura,	33	F.	Laundress,	Yes.
17	Saccular and fusiform,	Arch, ascending just above valves,	Œsophagus,	40	M.	Laborer,	Yes.
18	Dissecting,	Whole arch and thoracic aorta,	Pericardium,	42	M.	Ferryman,	No.
19	Saccular, five,	Ascending portion of arch,	Pericardium,	...	M.	.....	No.
20	Saccular,	Arch, transverse and ascending.	Left lung,	38	M.	Coachman,	Not until day before death.
21	Saccular,	Arch, ascending and transverse,	Pericardium,	45	F.	Domestic,	Yes.
22	Saccular,	Arch, ascending and transverse,	Right pleura,	...	M.	Laborer,	No.
23	Saccular,	Arch, ascending,	Pericardium,	..	M.	Laborer,	No.
24	Saccular(4) and fusiform,(2)	Arch, and thoracic aorta,	Not ruptured,	59	F.	Domestic,	Yes.
25	Saccular (enormous),	Abdominal aorta,	Abdominal cavity,	...	M.	.....	Yes.
26	Saccular,	Abdominal aorta,	Retro-peritoneum,	...	M.	Laborer,	No.
27	Saccular,	Abdominal aorta,	Peritoneum,	...	M.	Laborer,	Yes.
28	Saccular,	Aorta, thoracic,	Left pleura and lung,	50	M.	Mechanic,	Yes, but aneur. not found.
29	Saccular,	Abdominal aorta,	Peritoneum,	40	M.	Laborer,	Yes.
30	Saccular,	Aorta, thoracic,	Left pleura,	48	M.	Laborer,	Pain only.
31	Saccular,	Aorta, thoracic,	Not ruptured, pneumonia,	68	F.	Domestic,	No.
32	Saccular (enormous),	Arch, transverse,	Not ruptured,	60	F.	Domestic,	Yes.

Cases of Rupture of Aorta.

No.	Variety and situation.	Where ruptured.	Age	Sex	Occupation.	History of aneurism.
1	Rupture at point of calcification one inch above the valves,	Left pleura,	50	F.	Domestic,	No.
2	Rupture one and a half inches above valves; coat thin,	Pericardium,	50	M.	Ironworker drinker,	No.

The 26 cases of aneurism of the thoracic aorta, not including the dissecting aneurisms, were distributed as follows: 12 were of the ascending portion of the arch (many of them were situated just above the valves in the sinuses); 4 were situated at the junction of the ascending with the transverse portion of the arch; 1 was confined almost entirely to the transverse aorta; 3 were situated at the junction of the transverse and descending portions of the arch; and 4 arose from the descending portion of the arch and the thoracic aorta, and in two cases multiple aneurisms involved the whole arch and thoracic aorta.

As to the character of the aneurisms in those cases in which only one aneurism was found—*i. e.*, in 27 cases—21 were saccular, 4 were simple fusiform, and 2 were dissecting aneurisms. Where the aneurisms were multiple—*i. e.*, in 5 cases—in each of two there was a fusiform and saccular, and in one there were two and in a second five saccular aneurisms. In the fifth case there was a double saccular aneurism of the transverse portion of the arch, a fusiform and beginning saccular of the ascending arch, and a fusiform and saccular of the descending arch. Simple fusiform aneurism of the aorta (not including the dilatations of the ascending portions of the arch, which are very common in old age) are comparatively infrequent; there were only 3 examples of this kind in 32 cases of aortic aneurism.

Sixteen of the ruptures opened into the pericardium, 2 into the left pleura, 2 into the right pleura, and 2 into the left pleura and lung, and 1 each into the œsophagus, left bronchus, left lung, left bronchus and lung, spinal canal, and retroperitoneal connective tissue, and 3 into the peritoneal cavity. (In 3 cases death occurred from some other cause without rupture.)

The average age of those whose age was obtained was 44¼ years. The oldest was 68 and the youngest was 26. As to sex, 7 were in females and 27 in males. The females (9 in number) were all domestics by occupation. Of the males, all but 6 were engaged in some laborious occupation, such as laborers, firemen, mechanics, iron-workers, and 6 were either clerks, book-keepers, or in a higher sphere of life.

The histories were in many cases imperfect, but in only 5 was there a clear specific history obtained, or were there other lesions than the aneurism found at the autopsy significant of syphilis. An alcoholic history was given in 6 cases, and was probably present in many more.

In the 28 cases of thoracic aneurism, a history suggestive of aneurism was present in only 11 instances. In 7 of these 11 cases the aneurisms were situated at or beyond the junction of the ascending and transverse aorta. In 9 out of 12 aneurisms situated wholly on the ascending portion of the arch of the aorta, there was no history suggestive of aneurism. In several of the cases in which symptoms suggestive of aneurism were present, they were not so distinctive that a diagnosis

could certainly be made, although the patients were under observation for some time previous to death. The aneurisms of the abdominal aorta, with one exception, were all made out during life, and gave characteristic symptoms.

The mode of death due to aortic aneurisms is interesting. In almost every case in which a second person was present at the time of decease, death was almost instantaneous. In one instance a man in apparently perfect health, while making a social call, sank back on a couch on which he was sitting, gasped once or twice, and was dead. Rupture of an intra-pericardial aneurism was found at the autopsy. Another case is interesting from a medico-legal standpoint: the patient, apparently a strong, healthy man, was struck on the head and chest in a drunken brawl; he fell to the ground and died immediately. At the autopsy a ruptured aneurism was found. (The degree of responsibility of the assailant is not easy to determine in such a case; and the case is still in the courts. Before the autopsy death had been assigned to his injuries. The importance of autopsies in such cases was here well illustrated.)

In a number of cases there were several attacks of hemoptysis some time before the fatal hemorrhage occurred, and in every instance these hemorrhages were ascribed by the physician in charge to pulmonary tuberculosis. The autopsy revealed no such lesions. In these cases rupture occurred first into the lung, and then the blood made its way into the pleural cavity. In all of these cases pulmonary hemorrhage occurred before and at the time of death, and in two of them a large amount of blood was found in the stomach. Unless great care is taken in the examination in such cases, the pleural cavity would be regarded as the site of rupture, as the *lung usually contains but little blood after death*, and, excepting the pleura covering it at the point of rupture, shows no lacerations in its tissues; yet the blood may make its way through the bronchi, larynx, pharynx, and œsophagus into the stomach. Reference has been made in several English reports on thoracic aneurism to a number of cases in which hemorrhage from the mouth occurred, with the comment that the cause of the hemorrhage was not clear. These were probably cases of this kind in which there were adhesions between the aneurismal sac and lung, and in rupture the blood, in part, made its way into the lung.

In 11 cases death occurred instantly, the subjects dropped dead in the streets or at their work without warning. In a number of instances the subjects were found dead either in bed or where they had been working, death having apparently taken place suddenly and without pain or other symptoms.

Contrary to what would *à priori* be supposed, death occurred in but few instances during severe muscular exercise. As a rule, there was no apparent immediate cause for the rupture, as it occurred during sleep

or at times when there was no unusual muscular exertion. This was also true of the two cases of rupture of the aorta; one occurred when the patient was lying quietly in bed, and the second while the patient was returning home from work. This is a rather remarkable fact, and does not tend to confirm the usual opinion that severe strains have so large an influence as has been ascribed to them in the production of the dilatation and rupture of the aorta.

Nevertheless, the site of the aneurism, as regards frequency, corresponded pretty closely with the site of the greatest strain on the aorta, *i. e.*, the largest number were situated on the outer surface of the ascending portion of the arch, a short distance above the valve and at the junction of the transverse and ascending portions of the arch; then at the junction of the transverse and descending portions of the arch and on the thoracic aorta. Not one of this series arose from the concave surface of the arch, a position rarely occupied by aneurisms, although the writer has met with them. One or two came from the anterior face of the thoracic aorta.

As is the rule with aortic aneurisms, the majority were of the saccular variety. In a number of instances a saccular aneurism was superimposed upon a fusiform dilatation of the artery.

The two cases of rupture of the aorta are interesting. Primary rupture of the aorta without previous dilatation is of infrequent occurrence. When it does take place it is usually due to rupture of the artery at some point of disease in the coats, and rarely it occurs where there is no evidence of absolute disease, but apparently only thinning of the coats. Probably, however, in these cases the thinness of the coats is due to the degeneration and loss of elasticity in the media. The first case of rupture occurred in a female patient suffering with tubercular peritonitis. The aorta was the seat of endarteritis, and the point of rupture was about one and one-half inches above the aortic valve, at a place where calcification had taken place, and a calcific plate had broken through the superficial layers of the intima. There were also changes in the media, and the blood had made its way directly through the outer coats into the left pleural cavity. The rupture occurred while the patient was confined to her bed, when her death was daily looked for from the tubercular peritonitis.

In the second case the patient was an iron-worker, fifty years of age, and apparently in perfect health. While going up stairs, after returning from his work, he was suddenly seized with a very severe pain in his chest, attended with considerable dyspnœa. A physician was at once summoned; he prescribed some simple remedy, and told him he would soon be well. A few minutes later he died. At the autopsy the pericardium was filled with blood, and a transverse rupture of the aorta one inch in length was found about an inch above the valves. There were

a few small spots of sclerosis and atheroma in the artery, but at the point of rupture there was very little change apparent in the coats, only that they seemed to be somewhat thin.

Dissecting aneurisms of the aorta are more properly classed with ruptures of the aorta than with aneurisms proper. They always commence by a rupture of the intima. Then the blood penetrates between the layers of the middle coat or between the middle and external coat. Later, there is rupture either back again into the lumen of the artery, or, what is more frequent, externally. They differ from cases of rupture only in the greater resistance of the outer coat of the vessels. The history of one of the cases of dissecting aneurisms was like that of the cases of rupture, only that death did not occur so early. The patient, while at work, felt severe pains in the pericardium; returned home; his wife went for a physician, leaving him alone, and when she returned he was found dead. At the autopsy in this case the pericardium was filled with blood, and a rupture was found about one inch above the valves. The layers of the middle coat were separated (forming the aneurismal sac) as far as the abdominal aorta. I have no notes as to the mode of death in the second case of dissecting aneurism.

It has seemed to me a very noteworthy fact that in seventeen out of the twenty-eight consecutive cases of thoracic aneurism and in the two cases of rupture of the aorta there were no symptoms present marked enough to attract the attention of the patients or to cause them to consult a physician. Although it has been often noted that intrapericardial aneurisms situated in the sinuses just above the valves are frequently unattended by marked symptoms previous to rupture, the fact has not been emphasized that aneurisms situated at other points on the arch of the aorta are similarly unattended by symptoms in so large proportion of cases. There must be some explanation for the very large proportion of such cases in this series, and it is to be readily found. They are almost all cases of sudden death, which would properly come under the notice of the coroner. Many of them were seen through the courtesy of Dr. Jenkins, Deputy Coroner. The large proportion of the remainder were cases of sudden death among the inmates of the almshouse and workhouse on Blackwell's Island. These, too, were properly coroner's cases, but by the courtesy of the coroners the autopsies on such cases are made at the hospitals by the medical staff.

As all cases of sudden death without medical attendance become coroner's cases, it is natural that we should here find classed the large majority of cases of death from ruptured aneurism. Where sudden death occurs with no suspicious circumstances, it is unusual for the coroner's physicians to make post-mortem examinations. Hence it is that these cases of sudden death from rupture of aortic aneurisms do not come frequently under observation on the post-mortem table. They

occur in the service of the coroner, autopsies are not usually made by them, and the cause of death is assigned to heart disease or apoplexy. If the subjects are among the poorer classes, the physician who is called in at the time of death does not care to make an autopsy, and among the better classes, where they are more infrequent, autopsies are but rarely performed. Dr. Jenkins, who has had a large experience in this work and who has made many careful observations on this subject of sudden death, has arrived at the conclusion that rupture of thoracic aneurism is one of the most frequent causes of sudden death unaccompanied by previous severe symptoms. This observation I can entirely confirm. Heart disease and cerebral hemorrhage are the two conditions that are usually supposed to be the cause of sudden death. But in the large majority of cases of sudden death from valvular disease of the heart, there have been characteristic symptoms of the cardiac affection for some time preceding death. In diseases of the *myocardium*, absence of symptoms is not infrequent. Again, in cerebral hemorrhage it is the exception for death to occur immediately. Patients live for some minutes or some hours at least. In rupture of thoracic aneurisms death is usually almost instantaneous.

That these cases are much more frequent than is generally supposed, is shown by the large number that have fallen under my observation in this short period. They have been so frequent, not from a coincidence I believe, but because a class of cases have been examined that ordinarily do not come under observation on the post-mortem table. During this period I have not met with many cases of ruptured thoracic aneurism in the autopsies at Bellevue and Charity Hospitals.

The presence of foreign bodies in the air-passages and uræmic convulsions are causes of sudden death which should be mentioned in this connection. These five conditions—*i. e.*, cardiac affections and especially diseases of the myocardium, rupture of thoracic aneurisms, cerebral hemorrhages, uræmic convulsions, and foreign bodies in the air-passages—and in the order named, I believe are the most frequent causes of sudden death in adult life without marked previous symptoms. This is, of course, excepting traumatism, poisoning, etc.

A remarkable instance of the freedom from marked symptoms and absence of physical signs so frequently seen in large multiple aneurisms, was presented in one of these cases. The patient noticed a small pulsating tumor just above the left sterno-clavicular junction. She did not complain of this or seem to suffer much discomfort from it. Aside from the pulsations, the presence of a very slight single murmur over the tumor and an area of slight dulness situated on the right of the median line over the sternum on a level with the second rib, there were no signs or symptoms of aneurism. The patient died from an intercurrent affection, and the autopsy revealed the presence of a large dilata-

tion of the ascending portion of the arch with a small saccular aneurism arising from it, and also a second saccular aneurism, size of a small lemon, arising from the junction of the ascending and transverse arch, with a third saccular aneurism superimposed upon it. The second and third had extended across the mediastinal space, and the third had presented at the left sterno-clavicular junction. On the anterior aspect of the descending portion of the arch and the thoracic aorta there was another large fusiform dilatation with a fourth saccular aneurism arising from it. Aside from the signs mentioned above, there were no murmurs, no signs of pressure, no pain or discomfort, excepting that produced by the small tumor in the neck, notwithstanding the very extensive involvement of the aortic arch and the thoracic aorta.

Another case in this series also well illustrates the great freedom from very marked symptoms in some cases of extremely large aneurisms of the aorta. In No. 32 of the series, the patient was a helper in Charity Hospital. She was supposed to have a cardiac affection, but continued her work and it was not thought to be of very great moment until a short time before her death. No diagnosis of aneurism was made. At the autopsy an enormous aneurism of the ascending and transverse aorta was found that filled a large part of the thoracic cavity. It was about six by eight inches in diameter, and had displaced the heart so that the base was situated low down in the right mammary line. The apex was in the epigastrium. The left lung was compressed and pushed to the rear so that its anterior border extended but little in front of the left axillary line. There was no great pressure upon the thoracic walls at any point, and no erosions of the bones. An enormous clot of stratified fibrin occupied the front of the aneurismal sac, and the current of blood had flowed back of this in its course from the cardiac opening of the aorta to the beginning of the descending portion of the aortic arch. The sac had not ruptured.

As to the pathology of aneurismal dilatation of the aorta, it has seemed to me that far too much emphasis has been ordinarily placed on the influence of endarteritis and atheroma as applied to the intima. These are not the changes that usually or necessarily precede the formation of dilatations, and in themselves, if they do not produce a secondary process in the media, are not followed by dilatation at least in the aorta. The changes that precede dilatation of the aorta in the majority of cases are situated in the middle coat, and may or may not be accompanied by changes in the intima. They seem to be of a degenerative nature rather than inflammatory. There is granular disintegration and disappearance of the elastic fibres and fatty degeneration in the muscle cells. The middle coat often has almost disappeared in small saccular dilatations, when the intima is unaffected or only slightly thickened. In those cases when the process is a rapid one and

when rupture occurs early, there is frequently little or no new growth of connective tissue and few or no infiltrated leucocytes in the degenerated media. When the process is slower or later in the course there is often a secondary new growth of connective tissue. But this, it seems to me, is not inflammatory in its nature and is not primary, but it is a fibrous hyperplasia, is secondary, and is to be regarded as a conservative process. After the degeneration of the muscular and elastic fibres, these are not reproduced, but in the attempt at repair their place is taken by new-formed fibrous connective tissue. This is a kind of fibrous hyperplasia—a scar tissue. That simple atheroma and endarteritis do not usually produce the changes preceding dilatation, is shown by the absence or slightly marked character of these processes in many cases of rapidly forming aneurisms, and by the very extensive changes of this nature that are often present without dilatation. In fact, in my own experience in those cases in which there was the greatest change in the intima, as a rule, no dilatation or very slight dilatation was present.

In small saccular dilatations one-fourth or one-half of one inch in width of rapid formation, I have found in a number of instances at the point of dilatation absence, or almost complete absence, of the middle coat. This had disappeared first at the point of dilatation on each side of the sac. The intima in some cases showed marked changes, and in others only very slight changes in structure. Occasionally the process in the media is inflammatory in character, and is properly designated a mesarteritis; but these cases are the exception rather than the rule. In them the adventitia is also often involved, and a dense round cell infiltration is found around the vasa-vasorum.

The etiology of aortic aneurism is somewhat obscure. Theoretically, there are two possible series of influences which may produce dilatation of an artery: first, anything that diminishes the resistance or elasticity of the arterial coats, and, second, anything that increases the arterial tension. The second influence—*i. e.*, increase of arterial tension—probably cannot produce dilatation unless there has been preceding it some change in the coats of the artery. As regards the first influence, any disease of any of the arterial coats will produce some diminution in the resisting power or elasticity of the artery, and so will predispose to aneurism. But it is especially the middle coat that gives strength to an artery, and it is disease of this coat that is followed by dilatation. It has occurred to me that the changes found in the arterial coats in aortic aneurisms are such changes as would naturally be produced by disturbance of the blood supply to the walls of the arteries. An endarteritis affecting the vasa-vasorum of the aorta would result in similar changes in the arterial walls. I have not been able to demonstrate such a change in the cases thus far examined, but believe they must be often present.

There can be no question, I think, about the influence of syphilis in

the production of aneurisms, and there are many reasons for regarding this disease as the chief factor in their causation. The degenerative changes in the middle coat which precede the formation of aneurisms are such changes as might be produced by syphilis. Then in a large proportion of cases, aortic aneurisms are found in the class of persons most likely to have been the subjects of syphilis. Further, very frequently, where an accurate and reliable history can be obtained, the patients are found to be syphilitic; and, finally, the influence of syphilis in the production of other forms of arterial disease cannot be questioned. (A syphilitic endarteritis (obliterating) affecting the vasa-vasorum would account for these cases, and would explain the acute dilatation that sometimes occurs in syphilitic subjects.) On the other hand, other influences that have been supposed to result in the production of aneurisms are far more frequently present unaccompanied by such changes. Severe muscular exercise and strains can only be active in the production of dilatation where there have been antecedent morbid changes in the arterial walls.

From these and other considerations, it has seemed to me—although the question is far from being settled—that syphilis is probably the most active agent in the production of aneurismal dilatations of the aorta. It does not follow that it is also the most active agent in the production of aneurisms of the smaller arteries. A history of syphilis, however, was only obtained in a very small proportion of the cases in this series.

It is not easy to determine the exact influence of strains or severe muscular exercise in the production of aneurisms, but there can be little doubt that primarily, or secondarily, they play a considerable part in their causation. But that increased arterial tension or strains, such as would produce hypertrophy of the heart, are not ordinarily present in the formation of aneurisms, is shown by the absence of cardiac hypertrophy in these conditions. Enlargement of the heart is the rare exception in my experience in simple uncomplicated cases of aortic aneurism, even if they are of large size and multiple. It is only found where other causes of hypertrophy are also present, such as affections of the myocardium or the valves or general arterial disease.

The suggestions I would throw out from this series of cases, recognizing the fact that they are based upon a comparatively small number of observations, are:

1. That aortic aneurisms are more frequent than is usually supposed.

2. That rupture of aortic aneurisms and rupture of the aorta together form one of the most frequent causes of sudden death occurring without previous symptoms.

3. That very frequently indeed aortic aneurisms give no signs of their existence, or, at least, very indefinite ones until rupture occurs.

4. That the comparative frequency of rupture of aortic aneurism as a cause of death has largely escaped notice, because in this country this class of cases does not often come under observation on the post-mortem table. Death occurs suddenly without previous symptoms, and, without an autopsy, is charged to heart disease or cerebral apoplexy.

5. That syphilis forms a large and, perhaps, the largest factor in the production of aneurisms of the aorta. This disease of the middle coat is perhaps often secondary to disease of the vasa-vasorum.

6. That when dilatation of the aorta occurs, in the large proportion of cases it follows disease of the middle coat, which is in the nature of a degeneration, and not an inflammation.

I am indebted to the great courtesy of Dr. W. T. Jenkins, Coroner's Physician, for the opportunity of seeing many of the cases reported in this paper. It was in the service of the coroner that a large proportion of the cases of ruptured aneurisms first came; and I would especially acknowledge my obligations to Dr. Jenkins for having first directed my attention to the frequency of rupture of aortic aneurisms as a cause of sudden death.

ON RESECTION OF THE LONG BONES.

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Conservative surgery can claim few greater successes than those by which limbs have been saved from the amputating knife, restored from deformity to symmetry, from ankylosis to mobility, or from weakness to stability. These triumphs show that the surgery of the long bones has not lagged behind that of other departments. Some of the greatest successes have been in connection with subperiosteal resection. Unfortunately, the advance has not been all along the line; and has been least in one of the most numerous and important classes of bone disease.

Osteitis terminating in necrosis is treated very much the same now as it was a generation ago, although the fearless application of sound principles is capable of doing as much for bone diseases as for those of other tissues—more, indeed, for in no other tissue are the reparative processes of nature so fraught with obstacles to the surgeon, or deformity to the patient. Yet there are no inflammatory processes in which a policy of delay is more strenuously inculcated by even the most recent text-books.[1]

Bone affections are exceedingly prevalent in Kashmir; and my experi-

[1] Heath's Dictionary of Surgery. Erichsen, etc.

ence, which amounts to several hundred operations for such, has led me to formulate for myself more precise rules than are usually taught. It is especially of the resection of the shafts of long bones that I now write. Of these, since 1882, I have removed about twenty-five more or less completely and for various conditions of disease.[1] In dealing with osteitis and its results, the surgeon's efforts are directed, in the early stage, to efficient drainage of the portion of bone chiefly affected, whether it be the periosteum, cancellous tissue, or the medulla; in the later stages to the removal of pus and sequestra in such a way that the strength of the bone and its proportions may be conserved or restored.

1. What position does subperiosteal resection occupy as a means of treatment?

A short glance must be taken at the nature of the inflammatory processes, in immediate relation to operative methods.

Inflammation of a bone is seldom confined to one portion of that tissue. Our ordinary nomenclature—periostitis, epiphysitis, etc., is useful; but it is seldom that one of these diseases occurs uncomplicated. Periostitis shades off into osteitis, and epiphysitis into endostitis. But these portions of the bone are affected in different degrees, just as different parts of the same tissue usually partake unequally in the inflammation.

Thus the same process, varying in its seat and its intensity, leads in one part of the surface to the formation of osteophytes, and in another to pus; in one part of the dense tissue to sclerosis, in another to necrosis, each reacting in some way on the neighboring portions of the bone. Herein lies the difficulty of accurate surgical interference, but also the danger of delay.

In other tissues pus may form, but necrosis or gangrene of them from inflammation is rare. The unyielding nature of osseous tissue is the cause of the serious effects which follow almost any acute inflammation in it. That these effects are not more severe in all cases, is due to the loose-textured medulla which acts as a reservoir at the outset; and at a later stage to the rapid enfranchisement of the narrow blood channels by osseous absorption. Thus it follows that periosteal and bone drainage at the right time may save many a case from necrosis. Nevertheless, there still remains a considerable number of cases in which necrosis is inevitable; while a very large number of cases present themselves in which the necrosis, although quite preventable if timely treatment were adopted, has developed before the case is seen by the surgeon.

2. Primary resection is applicable to those cases in which more or less general necrosis is inevitable. They are, fortunately, not common. Acute suppurative periostitis with complete separation of the periosteum

[1] See Appendix.

from the shaft may be cured simply by drainage. I have seen several cases of this; mostly in the very young, but one in a lad of seventeen years, with an abscess (subperiosteal) completely encircling the whole femur.[1]

Acute epiphysitis, or central osteitis, may subside after drilling.[2] But there is a combination of these in which the whole blood-supply is completely cut off; a *panostitis* in which within a few days the diaphysis is separated from one or both epiphyses, the periosteum is distended and separated from the whole shaft, and the medullary cavity is filled with pus. Even at this stage drainage may do much, but it is only a half measure. Resection is clearly indicated; and the following case shows what it can accomplish:

Case I.—S., æt. fourteen, admitted to Kashmir Mission Hospital October 30, 1886.

History. Swelling began at ankle twenty-eight days previously, and gradually extended up leg; abscess burst twelve days ago.

Present state. Very emaciated, high fever; sinuses over front of tibia and over internal malleolus, with abundant discharge of pus. The probe passes up and down the whole surface of bone, which is bare and in parts rough; through the lower sinus it passes into the bone.

Operation. An incision was made over the whole length of the shaft of the tibia, which was then removed. The lower end being already half separated from the epiphysis, scarcely required the use of any instrument; the upper end was severed with a chain-saw. The periosteum and skin were accurately apposed by sutures, and a large sized drainage tube inserted at the sinus over the internal malleolus the whole length of the cavity. Both epiphyseal surfaces were rotten and purulent, and the bone infiltrated with pus; on the surface were a few thin irregular patches of new bone. The skin wound united primarily, the fever at once ceased, and the discharge diminished. On the fiftieth day the tibia was quite firm and well-formed, although not quite rigid. The patient left the hospital a few days after, strong and well, but with a slight limp. In the following March he returned to show himself, having walked the previous day sixteen miles from his home, to which he intended returning the same day. The limb in appearance and usefulness was equal to its fellow; but shorter than it by a half inch, and at the calf rather thicker. The tibia was of the normal triangular outline, tapering slightly in the lower third.

In total necrosis separation of the shaft may spontaneously occur very quickly. The whole process may be completed in a week or ten days. Its removal by the surgeon is then a simple matter. A few periosteal adhesions may have to be stripped off, with the finger or otherwise, and the shaft then withdrawn through a small incision at either extremity. More often the separation is partial, and only at one end of the diaphysis,

[1] See, special discussion, Clinical Society, London Lancet, i. p. 573, 1877; and at Medical Society, London Lancet, i. p. 303, 1886.

[2] Macnamara: Diseases of Bones and Joints. 3d edition, p 126. Kashmir Mission Hospital Reports, 1882-1887.

which may then be removed with a chain-saw in its continuity, or with a chisel at its other end, according to circumstances. I have thus removed not only the tibia and fibula, but the femur, humerus, clavicle, radius, and ulna.

Perhaps the clearest of all cases for primary resection are those of acute periostitis, sometimes called osteomyelitis, following fracture. These have been far too often submitted to amputation. Of this the following case is a good example:

CASE II.—A boy, aged eleven years, fell from a tree and sustained a compound fracture involving the shoulder-joint. I removed the head of the bone and a small portion of the protruding shaft. But osteomyelitis led to suppuration of the lower epiphysis, which again involved the periosteum. Incising the abscess I found the whole lower portion of the shaft bare, and the epiphyseal line eroded. Completing the separation I withdrew the shaft. An almost perfect result was obtained. The periosteal tunnel rapidly filled; suppuration ceased; the elbow synovitis at once subsided; the new shaft at first larger than its fellow and flexible, became bony and of normal size. When he left the hospital at the end of ten weeks he had a useful limb, though of deficient muscular power, and slightly restricted range of movement at the shoulder.

Spontaneous fracture not uncommonly happens. From many examples I select the following case as most noteworthy:

CASE III.—*Diseased femur and knee-joint; spontaneous fracture; resection of femur; drainage of joint; recovery.*—Gafara, aged fourteen years. Thigh first became swollen a month before admission. Three weeks later the thigh broke and bone projected.

State on admission. Three inches of shaft of femur projecting from a large wound near the knee-joint, with which it freely communicated. The lower two-thirds of the thigh riddled with abscesses.

Operation. I resected with a chain-saw eight inches of the shaft of the femur, and inserted a large drainage tube through the knee-joint, emerging posteriorly. The portion removed proved on section to be infiltrated with pus to within an inch of its upper end. The lower epiphysis—*i. e.*, the condyles—had a smooth fractured surface. The progress was very satisfactory, although the abundant discharge for the first week was rather alarming. About the tenth day marked improvement began. Unfortunately, the weight used for extension was too heavy, and causing ulceration, had to be altogether discontinued; otherwise he did well. The last drainage tube was removed on the seventh week, by which time a very massive femur had been formed. There being some flexibility at the junction of the new shaft with the condyles, a plaster splint was applied and he went home.

A few days later he returned for removal of the splint and was photographed. At this time the bone was rigid, very massive, and shortened about three inches. He could stand, but not walk. The knee was partly ankylosed. There seemed every prospect that, in a short time, with increasing strength, he would gain ample power and mobility in the limb, which would increase in length from both epiphyses, and not remain permanently as shortened as at present.

I have already indicated as subjects for primary resection, cases in which extensive necrosis cannot be avoided. That they should be operated on in this—the pre-sequestrial stage—may be deduced from a consideration of the process of sequestration.

This consists of three stages. There is the separation of the necrosed portion by the action of granulation. Contemporaneous with this is the process of splinting or "scaffolding" the shaft; the healthy osseous tissue being strengthened by interstitial deposit, and the periosteum actively organizing an outer layer of bone; nature thus providing, in most cases, for a maintenance of the strength and continuity of the limb.

The third stage, less understood than the former, consists in an absorption and remodelling of the new bone; tending to spontaneous extension of the sequestrum and approximation of the new to the characters of the old shaft.

It is marvellous to what perfection nature attains, and how many-sided are its processes; but it works "exceeding slow." I have seen a case of twenty years' duration with the sequestrum still incarcerated.[1]

The natural cure is, moreover, beset by the Scylla of septicæmia and the Charybdis of waxy disease.

A very large proportion of the subjects of acute bone disease succumb to its effects before any sequestrum is fairly separated. My list of nearly two hundred major operations for disease of the long bones shows only two deaths. One was in a lad suffering at the time of admission from septicæmia. Amputation was asked for, and being refused, I merely drained the bone. After a week's treatment he was removed home, and shortly afterward died.

The other was a case of necrosis of the femur and spontaneous fracture. I resected the lower fractured portion, and the wound did well; but the other half was also diseased, and the child sank after four months' suppuration. This case was at the beginning of my experience. Complete resection would have almost certainly saved the child's life.

Early operation and complete removal of the disease are attended with practically no risk to life. Within a few days the weakest patient begins to gather strength.

Now, if the necrosed bone can be removed with completeness, and a useful limb be retained, it is obvious that the sooner it is done the better.

The natural method is not only dangerous to life, and slow, but it also labors under inherent imperfections. Nature throws out osseous splints, which are an obstacle to the extension of the sequestrum.

The formation of a bony case over necrosed bone resembles the method by which a fracture is naturally splinted, by an abundant provisional callus. Admirable as this is in design, the surgeon prefers to apply

[1] Similar cases have been reported by Spence, vol. ii. p. 232; and Bryant, Lancet, vol. i. p. 10, 1879, etc.

external splints, and by preserving immobility to restrain the outcrop of callus.

So, too, in the case of necrosis, the surgeon does not want an osseous case external to the old shaft; he wishes the necrosed tissue to be replaced by healthy.

If the sequestrum be present, the new bone is formed in the wrong place. It constitutes a deformity. Moreover, it offers an obstacle to the removal of the sequestrum; and much of it may require to be cut away. The architect, wishing to repair a pillar, supports the roof by a temporary scaffolding; he does not encase the pillar in brick.

Surgical opinion is yet very backward on this point. The question of early resection was raised, many years ago, by Mr. Holmes. Since then, at rare intervals, cases have been published. But the standard surgical text-books, Heath's *Dictionary*, Erichsen, etc., either ignore, or mention only to condemn. Jones, although quoting Holmes, has evidently never tried resection of long bones himself, and is unfavorable; but Macnamara has had some successful cases, but more as a *dernier ressort* and substitute for amputation than as a primary method.

3. The stock objections are two: that the surgeon cannot gauge the extent of the necrosis, and that the stimulation of the sequestrum is necessary for the formation of the new bone.

I take up the second objection first. It is best met by an appeal to facts, and, as far as my own experience goes, I can speak decidedly on the point. In none of my cases of primary resection has there been any lack of osteogenetic reaction.[1]

It must be remembered that the shaft is removed at a time when the periosteum is actively secreting pus. I have already stated it as a clinical fact, that excessive irritation of that membrane produces *pus*, but less irritation *bone*. Now, in cases of acute necrosis the periosteum may continue to pour forth pus for months, while forming but little bone. In these very cases, if the necrosed (or necrosing) bone be removed, the inflammation at once becomes formative.

The first resection I ever performed was of this type. The shaft was bare, and there was abundant discharge from several sinuses, yet the periosteum was little thickened. The history pointed to acute suppurative periostitis of three months' duration. After removal of the bone it was replaced in a few weeks by an hypertrophic new shaft. When seen four years later, but for the skin cicatrix, one could not have told the limb had been operated on.

The following case shows the rapidity of repair:

Case IV.—A girl, aged six years, had several sinuses on the skin, and considerable suppuration. A portion of bone, four and a quarter

[1] There have been cases of failure. See Jones's Diseases of Bones, p. 85; also British Medical Journal, 1. p. 793, 1885; and one case in Kashmir, but the last was after secondary resection.

inches long, was resected on November 17th. The discharge, after the second day, did not exceed half a drachm. By the fourteenth day there was evident firmness, except at the central sinus. When the discharge quite ceased at this point the granulations rapidly became osseous. I used to observe the ossification by pushing a needle through the granulation tissue. Splints were worn to check deformity, but, before the month was out, she could walk unaided.

On December 17th she was photographed and went home. The cicatrix was not yet pigmented.

About the same time the tibia of a lad was partially resected. Three weeks later, owing to suppurative synovitis of the knee-joint, secondary to disease of the head of the fibula, I amputated the limb. Examination of the tibia showed that the site of the resection was filled by a firm gelatinous material exactly corresponding in size and shape to the bone removed. From the epiphysis and the cut extremity of the shaft, ossification was rapidly penetrating this material. A careful microscopic examination of this was made, and also an oil painting of it while in the fresh state.

The size and moulding of the new bone are not, as perhaps might be expected, dependent on the size of the cavity left to be filled by osteoplastic granulations.

In one case I left open the wound. In this, owing to overgrowth of new material, it was difficult to obtain cicatrization of the skin. In most of the cases the soft walls of the wound contracted to the size of the large sized drainage tube left in the cavity. In yet another case no tube was used, and there was no space left at all. But in all these cases steadily and surely the gap in the shaft was filled by a well-defined hard substance; which, in most cases, enlarged to something above normal size.[1]

It seems as if where the growth of the simple neoplasm is deficient, or where its individuality is obtrusively developed, the organism controls its working and models them to its own patterns. As where a capillary circulation enlarges to carry an anastomotic circulation, or the bulky cicatrix with its complex adhesions becomes pliant. Similarly the slender cartilage-like (not cartilaginous) shaft enlarges; to compensate for its early pliability it hypertrophies, but, finally, both in size and shape, becomes more and more closely approximated to the design of the original bone.[2]

It must be remembered that the very cases in which acute necrosis occurs are those in which there is abundant tissue activity.

4. The case of what I may call secondary resection—that is, resection

[1] If the wound be left to close by granulation, hypertrophy is common. I have seen three or more cases.

[2] A case is reported by William T. Smith, Lancet, vol. i. p. 753, 1884, of ulceration of the cicatrix; the patient desiring amputation.

of healthy bone, in some cases of the new bone, as well as of diseased bone, is on a different footing. It is done on a different class of subjects, and not of necessity; and before deciding on it, the age of the patient and the condition of the periosteum have to be taken into account, as well as the local and general conditions.

For example, in a case of chronic endostitis in which necrotic lamellæ are buried in the sclerotic layers of a thickened shaft, what can be done? If the subject is under twelve or fourteen years of age, subperiosteal resection is by far the best and quickest method of cure.

There is a distinct possibility of overstepping the mark and failing to obtain sufficient new bony formation to replace the shaft in many cases of endostitis, for the periosteum may be inactive and the age of the patient unfavorable. I have seen a case, in the practice of another surgeon, in which the tibia of a lad of sixteen was removed for spicular necrosis, and was replaced only by a thick fibrous band. In such a case bone-grafting, as recommended by M. Poncet[1] in primary resection, might be useful; but in the cases suitable for primary necrosis it is quite unnecessary; and is harmful in preventing primary union of the skin.[4]

5. But there is the former objection to consider. There can be no doubt that in operating early in other than cases of total necrosis, it is no simple matter to estimate the extent of bone that will be sequestrated. The mere presence of necrosis if superficial is easily ascertained, but without inspection and, it may be, gouging of the surface[2] the limits cannot be defined. In the majority of cases the surgeon may well be content to wait for exfoliation.[3] But where the disease is extensive and is dangerous to the patient by excessive or prolonged suppuration, or by implication of a joint, the intervention of the surgeon will certainly be beneficial.[4] He should then attempt not merely to drain, but to remove the whole disease. In an accessible bone like the tibia this is not difficult. If superficial, the disease is rarely circumferential, but extends in parallel layers. Often there are necrosed lamellæ imbedded in the thickness of the bone; or sometimes a mere shell of necrosis in the medullary canal. In many such cases I have removed the whole circumference of the shaft for a length of from two to six inches; in others, the removal has been with the chisel in such a way as to leave a narrow strip of the shaft to serve as a splint. It is more usual to treat such cases by gouging, leaving a complete shell of bone. Where this is much expanded it entails considerable disadvantages, leaving a large cavity

[1] Poncet, La semaine Médicale, December, 1886, recommends primary bone-grafting after resection.

[2] Better than trephining, as one may thus chisel away the whole disease, or leave a strip of bone as a splint; *vide* Heath, Lancet, vol. i. p. 573, 1877.

[3] Social conditions have to be considered. In some countries to delay operating, is to lose the opportunity of doing so at all.

[4] Macnamara: Appendix. Spence, Lancet, vol. i. p. 387, 1876.

with rigid walls, to heal which, by granulation, is a very slow process. If the new bone be removed on one side, the cases heal much quicker.

I think secondary resection is seldom, if ever, indicated in the femur and humerus, although in a lad with a huge expanded femur, in which sequestra and shell seemed inextricably mixed up, I performed it last year with a successful result; removing five inches of the bone. It was replaced in a few weeks by a still more massive shaft.

To the other long bones it is certainly applicable; and where performed a cure may be confidently looked for in as many weeks as the case might otherwise require months. Resection should, of course, never be performed where a *simple* sequestrotomy would suffice; and in many cases patience is rewarded by the exfoliation of an easily removed sequestrum.

6. After resection of the whole thickness of a long bone, care has to be exercised to prevent shortening, distortion of the limb by muscular action, or by overgrowth or displacement of the second bone, as the fibula, etc.

My practice is to suture the skin closely and leave in a large drainage tube until the periosteum is beginning to thicken and form granulations. The limb is kept on a splint and with extension apparatus. If after removal of the tube reaction is insufficient, a stout wire may be inserted and left in the whole length of the wound. I have not had occasion to use bone or periosteal grafts in any resection case. In spite of the care involved, and of apparently severe operations, there are few more satisfactory cases to the surgeon than these.

A patient is brought in a state of hectic from suppuration, and it is doubtful whether he will survive expectant methods of treatment; amputation is thought of, but excision of the diseased shaft instead of the limb is followed by a fall of temperature, cessation of suppuration, and within a few days the appetite improves, and before long a renovated bone sets its seal on the convalescence. The rapidity of the improvement needs to be seen to be believed; and a series of cases needs to be watched before one realizes what freedom from complications and certainty of success the operation gives if the age of the patient be not too great.

In conclusion, the importance and success of thorough bone drainage, as a means of preventing necrosis, is only now being generally recognized by the profession; the day will surely come when it will also recognize that in subperiosteal resection it possesses a thorough and rapid means of curing many cases not amenable to drainage. Bone-surgery offers no exception to the maxim that "Nature is a good servant, but a bad mistress."

Appendix.

Table of Major Operations on the Long Bones.

Kashmir Mission Hospital, January 1, 1882, to December 31, 1886.

Operation.	Femur.	Tibia.	Fibula.	Humerus.	Radius.	Ulna.
Subperiosteal resection, primary or secondary	2	10	4	2	2	3
Chiselling or gouging	10	21	1	3	1	...
Sequestrotomy	20	21	...	3	2	1
Bone drainage by osteotomy, etc. . . .	...	12	...	...	...	...
Total	32	64	5	8	5	4

This list does not include the very numerous cases of periosteotomy, opening abscesses, etc. Of the whole, only two cases (mentioned in the text) were fatal. None were amputated. All regained useful limbs.

CASE OF BILATERAL OPHTHALMOPLEGIA EXTERNA AND INTERNA ASSOCIATED WITH TABES DORSALIS, BULBAR PARALYSIS, AND LOSS OF VISION AND HEARING.

WITH SOME OBSERVATIONS UPON THE PATHOGENY AND ETIOLOGY OF BILATERAL OPHTHALMOPLEGIA EXTERNA.[1]

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Although von Gräfe, in 1856,[2] described "progressive ophthalmoplegia," it was not until 1879 that Jonathan Hutchinson aroused the attention of English physicians to that affection under the title "Ophthalmoplegia Externa,"[3] or paralysis of the external muscles of the eyeball. In the preceding year he had employed the term "ophthalmoplegia interna"[4] to indicate loss of power of the internal musculature of the eye, the iris and ciliary muscle. The affection described by the eminent English surgeon, however, was not the very common one in which the external muscles supplied by the third or the sixth nerve of one eye are paralyzed, partial oculo-motor paralysis, but that in which there is bilateral or symmetrical immobility of both eyes with ptosis.

Now, clinically, it is very important to distinguish between unilateral

[1] A paper read at the meeting of the Canada Medical Association, 1888.
[2] Arch. f. Ophth., Bd. 11, p. 299, 1856.
[3] Med.-Chirurg. Trans., lxii. p. 308.
[4] Ibid., lxi. p. 215.

ophthalmoplegia and the symmetrical bilateral form as the causes or conditions of occurrence are not the same in both. The bilateral, if involving all the external muscles of the eyes, but exempting the internal, very frequently, but not always, indicates disease of the nuclei situated in the floor of the fourth ventricle and of the aqueduct of Sylvius from which the oculo-motor nerves arise. It is often associated with similar degeneration in the nuclear origins of other cerebral or spinal nerves, as in bulbar paralysis and progressive muscular atrophy, or in the posterior columns of the cord as in tabes dorsalis.

Through the kindness of several colleagues, I had occasion to see the following case in consultation September 9, 1884:

Patient, an educated man fifty-four years of age, was of studious and very temperate habits, and free from evidences of syphilis, the possibility of which disease he positively denied. He married at thirty-three, and was the father of sixteen children; the youngest eight months old. About the beginning of August, 1883, suffered from severe headache, which he regarded as migraine, having been much afflicted with that neurosis in his youth; at the same time he became irascible. Toward the end of the month strabismus, diplopia, and slight ptosis on the left side supervened, but these gradually disappeared in about six weeks. Some five months later, lateral deviation of the right eye with diplopia set in, and in about two months was followed by ptosis, which like the other symptoms developed gradually, but unlike them has proved permanent.

In January, 1884, vision began to fail, and very soon reading produced ocular fatigue and frontal headache. In March articulation gradually grew difficult and slow—he had been a rapid speaker. He experienced no difficulty in selecting words to convey ideas, no failure of memory or intelligence. In April power of mastication became enfeebled, so that finally the lower jaw dropped from the upper and he could not raise it without the aid of his fingers. Deglutition likewise suffered; solids were occasionally arrested and ejected; fluids, including the saliva, trickled from the open mouth. In March his appetite left him, he became very weak and despondent, steadily lost flesh, and took to his bed from general debility. At this time his sexual power declined rapidly. In July deafness set in gradually and at first intermittingly. In the early part of August vision of the right eye failed rapidly. Of late he has been able to elevate the right eyelid a little and has regained somewhat masticatory power. Since March he has had several syncopal attacks, in which, although he does not lose consciousness, he grows very faint, vision fails, and his pulse becomes scarcely perceptible.

Present state.—Pale and much emaciated; surface dry and polished looking, voice feeble. Relates his own history, but so indistinct and defective is his articulation that I cannot understand many of his words. Marked ptosis on right side; can slowly raise the lid sufficiently to expose lower half of pupil; slight ptosis on left side; eyeballs fixed, no lateral or vertical movements; axes normal in direction; no strabismus; right pupil moderately large; left of medium size; both unaffected by light, and in both power of accommodation lost; complete blindness of right eye; reads with difficulty medium print with left eye—but two or three words fatigue him; eyes cannot follow an object passed

before them; has occasional darting transitory pains in the eyeballs, unaccompanied by luminous phenomena.

Right side of face smoother than left and angle of mouth drawn slightly to the left; cannot whistle; can contract orbicularis palpebrarum well, but the vertical folds are not as pronounced in the right upper lid as in the left. Lower jaw at rest is pendant; when speaking he closes it; asked to close the jaws, he does so by lifting his chin with two fingers; says that he has more power of mastication than he had, yet he cannot bite my finger placed between his teeth; little if any lateral movements of inferior maxilla; the masseter and temporal muscles on both sides are wasted, and can hardly be felt to contract during mastication; tongue when protruded deviates to the right, and its right half appears to be slightly atrophied.

No loss of power beyond general weakness in arms and hands; grasp of dynamometer by right hand 82, by left 78; in the horizontal posture can raise either leg when extended in spite of considerable pressure applied in front of ankle.

Tick of watch not heard when watch is applied either to ear or mastoid region; at speaking distance a moderately loud voice is heard; smell and taste unimpaired; function of bladder fairly performed; habitual constipation; appetite and digestive power now good; lives chiefly upon milk and soup; pulse 78, not strong; systolic basic murmur over heart.

Sept. 13. Reëxamined patient and confirmed the above facts, and learned some additional ones. Tactile and thermal sensibility lost over right frontal region, especially over supra-orbital region, less impaired over the infra-orbital area; not impaired over mental area; sensation on left side of face normal except in the temporal and supra-orbital regions; cornea of either eye insensitive to touch, and no reflex contraction of lid produced thereby; sensibility of both sides of tongue and of soft palate normal; no numbness in soles of feet; absence of patellar-tendon reflex on either side; prompt contraction of vastus internus under percussion of finger; walks readily without any ataxia with eyes shut, but totters from debility; has had for some time sense of stiffness of right cheek, and the finger introduced into mouth finds that the right cheek is forcibly applied to the teeth; at my request an oculist examined the retina, and on the 20th he reported the existence of that form of optic atrophy in either eye that occurs in locomotor ataxia, and loss of vision.

Another opportunity of seeing the patient was not afforded me, and he died two months later. There was no autopsy.

Here, then, we have a definite, yet progressive, invasion in the nervous system in a previously healthy and temperate man, free from syphilis, the steps, so to speak, of which were: headache, irascibility, diplopia, strabismus, and slight ptosis on the left side, which disappeared gradually. Five months later a gradual but permanent establishment of the same symptoms on the right side. A few months later gradual impairment of articulation, mastication, and deglutition, and about the same time the loss of sexual power. Four months later, intermitting and then continuous progressive bilateral impairment of hearing; a month later,

rapid failure of vision in right eye, and soon thereafter a tendency to syncopal seizures.

The order of development of the following additional symptoms present when he first came under my observation cannot be stated, as they had not been investigated: loss of pupil reflexes and of accommodation; complete immobility of both eyes, and occasional transitory darting pains in them; loss of the patellar-tendon reflex; insensitiveness of both corneæ, with absence of corneal reflex; loss or impairment of tactile and thermal sensibility in same branches of both fifth nerves—paresis of associated muscles—labial (supplied by the facial nerve) and lingual (supplied by the hypoglossal).

Resolving the symptoms present in this case into the several groupings which they appear to form, we have chronic progressive ophthalmoplegia externa and interna, chronic labio-glossal paralysis, and tabes dorsalis, combined with bilateral motor paralysis of the fifth nerve; loss of two of the special senses, vision and audition; and impairment of common sensation in some of the branches of the sensory portion of the fifth nerve on both sides.

The direct evidence of the existence of tabes dorsalis is the absence of the patellar-tendon reflex and the loss of sexual power without paralysis of the lower extremities; and the indirect, is the association with the above of double optic atrophy and amaurosis; early disturbance of the external and internal ocular muscles.

It is to be regretted that an examination of the larynx was not made, nor the degree of mobility of the soft palate recorded; but the coexistence of the following symptoms: great impairment of articulation and deglutition, inability to whistle, paralysis of the tongue, with slight wasting of one side of it, points to bulbar paralysis. Had the patient lived longer, paralysis, I doubt not, and wasting of both sides of the tongue would have been more marked.

It is not necessary to go over the evidence of the presence of progressive bilateral ophthalmoplegia. I have already alluded to the frequent association of chronic symmetrical bilateral ophthalmoplegia with other chronic affections of the nervous system, especially tabes dorsalis, and bulbar paralysis, and its occasional coexistence with progressive muscular atrophy and with "general paresis."

Pathogeny.—As these chronic associates of progressive symmetrical ophthalmoplegia present as their essential lesion a degeneration, consisting of an atrophy of the nerve elements and hypertrophy of the connective tissue of the affected portion of the columns, horns, bulb, or cortex, so in a few instances of progressive ophthalmoplegia that have been examined carefully[1] after death, an identical degeneration of the

[1] Med.-Chir. Trans., lxii. p. 316; Gower's Dis. Nerv. System, ii. p. 185.

elements of the central nuclei, from which the oculo-motor nerves arise, has been found, hence the name recently applied to these cases, "Nuclear Paralysis."

Chronic progressive ophthalmoplegia belongs, as a very general rule, to the "system diseases" of the cerebro-spinal system, depending, as it does, upon the morbid conditions of structures which have a common function, the regulation of the movements of the external and internal muscles of the eyes. Participation in function and secondary degeneration of tracts or centres connected with the primarily diseased area are clews to the pathogeny of bilateral ophthalmoplegia; but they do not explain the coexistence of bulbar paralysis or of tabes dorsalis, etc., sometimes present with it. Why, in such a case, does a distinct and different "system disease," a labio-glossal paralysis, or a posterior spinal sclerosis, or, as in our case, *both of these*, become associated with bilateral ophthalmoplegia externa? When the close proximity of the motor and even of the sensory nuclei of the cerebral nerves is recalled,[1] simple *extension* of disease by contiguity will doubtless be a part of the answer to this question.

Disease of the bloodvessels supplying the centres, such as endo- and peri-arteritis and senile atheroma, may also partly account for degeneration and other lesions of different centres or tracts which receive their blood supply from the same vessels.[2] Senile atheroma especially is apt to be diffused over the general arterial system, and the consequent atrophy or sclerosis may then invade indifferently and at the same time or successively, functionally related "systems" and structures of distinct and different functions.

Syphilis would seem to exercise some not well understood influence in predisposing to, if not inviting, degenerative processes in the oculo-motor nuclei as well as in the posterior spinal column, and this may account for the coexistence of ophthalmoplegia externa and locomotor ataxia, or of ophthalmoplegia and general paralysis of the insane. Syphilis is especially prone to produce endo- and peri-arteritis, and this is doubtless one way in which it imitates a diffused sclerosis or degeneration in the brain or cord. Finally, some congenital defect, whether an inherent want of resisting power to morbid influences, or an imperfect development of certain tracts, may account for the facility with which degeneration or other morbid process affects different portions of the cord or brain.[3]

As regards the *etiology* of bilateral ophthalmoplegia, the *acute* form has been met with in *apoplexy*, the blood occupying the region of the

[1] Exhibited diagrams of nuclear origin of cerebral nerves.

[2] See Adamkiewitz: Trans. International Med. Cong., London, pp. 1-3, 1881.

[3] Vide Ormerod, Brain, 1884; Bury, Ib., 1886; Smith, Boston Med. and Surg. Journal, 1885.

oculo-motor nuclei[1] or pressing upon the corpora quadrigemina and floor of the third ventricle, in a case of basic tuberculous meningitis,[2] as a rare sequence of diphtheria[3] and of typhus fever,[4] in a case of sulphuric acid poisoning, and in three of chronic alcoholism.[5]

When alcoholism or diphtheria induces ophthalmoplegia, it is probably sometimes through a *peripheral neuritis*. In Suckling's[6] case, due to alcohol, there were symptoms of peripheral neuritis in the lower extremities associated with the ophthalmoplegia. In the diphtheritic form it is probably rather a simple degeneration of the nerve fibre than a real neuritis, the interstitial tissue of the nerves very seldom exhibiting the proofs of inflammation except in the nerves of the palate.[7] The degeneration may affect the *periphery* of the nerves in their *whole extent*, including their anterior roots.

Diphtheritic ophthalmoplegia is probably sometimes of *nuclear* origin; just as diphtheritic paralysis of the spinal nerves is, in severe cases, sometimes associated with alteration of their ganglion cells in the cord. This view is favored by the fact that capillary hemorrhages have been found in the nerve centres and nerves in diphtheria. Professor W. M. Thomson,[8] however, has quite lately objected to the doctrine that diphtheritic paralysis depends upon lesions of the nervous centres, and has advocated its peripheral origin. The weight of evidence, in my opinion, supports the statement, that while diphtheritic paralysis is most frequently caused by peripheral neuritis, it is occasionally an effect of lesion of the nerve centres.

Finally, acute ophthalmoplegia has been observed in connection with bulbar paralysis and with facial palsy combined with paraplegia.

Chronic bilateral ophthalmoplegia, *per se*, is most frequently found in syphilis[9] affecting the oculo-motor nerves from their points of emergence from the base of the brain to the cavernous sinus, or in the walls of that sinus; or possibly affecting their nuclei directly or probably indirectly through disease of the vessels which supply these nuclei. It is also frequently observed in association with tabes dorsalis and occasionally in combination with progressive muscular atrophy, chronic bulbar paralysis and "general paresis;" and is then mostly due to nuclear degeneration, these associated diseases severally depending upon degeneration of the nerve fibres and cells of the cord or the brain.

[1] Sturge: Brit. Med. Journal, i. p. 851, 1881; Thomas: Ib., i. p 763, 1882.

[2] Mules: Brit. Med. Journal, xi p. 127, 1887.

[3] Gowers, Lib. cit., cites two cases: Uhthoff Neur. Centralbt., 1885, and Mendel, Ib., corœnne Bull. de l'Soc. Franc. d'Oph.

[4] Corœnne, Ib.

[5] Gowers, Lib. cit., xi. p. 182, from Gehirn Krankheiten, xi. p. 233.

[6] Suckling, Brit. Med. Journal, i. p. 464, 1888.

[7] Gowers, Lib. cit., ii. p. 838.

[8] The Med News, Philadelphia, June 9, 1888.

[9] Hutchinson: Med.-Chir. Trans., lxii.; Seguin; Journ. Nervous and Mental Dis., 1888, 317, and many others.

Thrombosis and inflammation of the cavernous sinuses are occasional causes of more or less complete progressive bilateral ophthalmoplegia.[1] It is then usually at first unilateral, but as the thrombosis is very prone to extend from one cavernous canal to the other,[2] the paralysis often becomes bilateral, and sometimes the muscles of the eye primarily affected regain their power. In some instances, internal ophthalmoplegia is joined to the external form (Robinson and Hutchinson's case). This implication first of one eye, then of the other, was regarded by Dr. Coupland as pathognomonic of ophthalmoplegia caused by thrombosis of the cavernous sinuses, but in the case which forms the subject of this paper there were no grounds for suspecting disease of the sinus, yet the ophthalmoplegia was unilateral for five months before it invaded the other side.

Tubercle at the top of the pons near the aqueduct of Sylvius was supposed to have been the causative lesion in Berry and Bramwell's case observed in a child two and a half years old.[3] The patient recovered, hence no opportunity was afforded of testing the accuracy of the diagnosis. In a case presenting almost the same clinical features as the last, Kojewnikoff[4] found capillary hemorrhage with softening of the gray matter limited to the floor of the fourth ventricle, the confines of the nucleus of the third nerve and aqueduct of Sylvius, extending symmetrically upon the two sides. Softening from embolism or thrombosis of the vessels of the floor of the fourth and third ventricles may be a rare cause of the disease.[5] Cold has been the only apparent cause in a few cases, and so have blows on the head, probably through basilar meningitis, or hemorrhage, or basilar periostitis being thereby reproduced.

Cases are published in which bilateral ophthalmoplegia externa has been a congenital and inherited defect. In some of these the ocular muscles and not their nerves seemed to be the source of the affection, for in a few instances the muscles have been found absent, in others they have been shorter and their sclerotic insertions placed more backward than what is normal. W. Lawford met with three instances of this inherited form in a family of seven children.[6]

In some cases observed in early life and apparently due to muscular defects, the primary disease may have been in the nerve centres and have been followed by atrophy or arrested development of the ocular muscles.

Well-marked cases of bilateral ophthalmoplegia externa uncompli-

[1] Coupland: Trans. Ophthal. Soc. of United Kingdom, 1887, vii. 228; Robinson and Hutchinson, Jr., Ib., 250, with plate.

[2] Thirteen times in twenty-two cases collected by Coupland.

[3] Edinburgh Med. Journ., 1887.

[4] Annual of the Universal Med. Sciences, 1888, iii. 143, quoted from Prog. Médicale.

[5] Kohler and Peck, Zeitschr f. Heilk., Prag., iii. 1880-81.

[6] Brit. Med. Journ., ii., 1887.

cated by *other* evidences of disease of the nervous system are recorded[1] in which *no cause* could be assigned. In one of these our young Canadian representative in the metropolis, W. Lawford, "thought the nuclei involved were those controlling the bilateral coördinated movements excited through the third, fourth, and sixth nerves, rather than the nuclei of origin of those nerves, for the reason that the action of the iris and ciliary muscles remained intact in each eye." But it is now admitted[2] that the nuclei which supply the internal muscles of the eye *lie in front* of those which supply the external muscles, and they are not supplied by the same vessels, so that the nuclei of the external ocular muscles may suffer and the nuclei of the internal escape, and *vice versa*.

It is perhaps possible that a *tumor* compressing the floor of the fourth ventricle and Sylvian aqueduct may cause bilateral ophthalmoplegia externa, but it must be an exceedingly rare occurrence and there would in all probability coexist other evidences of cerebral tumor, the most reliable perhaps of which would be double optic atrophy—not referable to tabes.

In addition to these causes which are severally productive of bilateral external ophthalmoplegia through a *gross lesion* of the oculo-motor centres or nerves, recent clinical experience has brought to light cases of the disease apparently of *functional* origin, and belonging to the neuroses, as idiopathic epilepsy and hysteria, etc., do.

A very interesting case of ophthalmoplegia externa associated with Graves's disease was published by Dr. Francis Warner[3] in 1882, and its sequel is related by Dr. Bristowe[4] in an able paper contributed in 1885, under the title "Cases of Ophthalmoplegia, complicated with various other Affections of the Nervous System." In addition to Graves's disease, this patient became the subject of bilateral ophthalmoplegia externa, gastric crises, complete right hemianæsthesia, great nervousness, constantly recurring hemorrhages from the ears and right nostril, and subsequently epileptic fits, persistent right hemiplegia with rigidity, and an almost constant temperature ranging from 101° to 105°. She died of bronchitis. A careful microscopical examination failed to detect "even a trace of disease" in the brain, cord, or intra-cranial tissues.

Bristowe's second case was almost a counterpart of his first, but the right-sided hemianæsthesia was not complete, the cerebral hemorrhage and Graves's disease were absent, and a left-sided chorea formed an

[1] J. B. Lawford: Trans. Opth. Soc. of United Kingdom, vii. 260, and Brit. Med. Journ., 1887, ii. p. 127; Beivor: Trans. Opth. Soc., vii. p. 281, and Brit. Med. Journ., 1887, i. p. 622; Hutchinson, Ib., 1888, i. p. 137; Birdsall: Journal Nervous and Mental Dis., 1887, p 66.

[2] Hensen and Vöcichers, Kohler and Pick, Jairhand, Forster, Graves.

[3] Med.-Chir. Trans., vol 66, pp. 107, 112.

[4] Brain, Oct. 1885, pp. 313, 344; Ib., Jan. 1887, pp. 544, 546.

episode of the case: this girl gradually recovered from her ophthalmoplegia, right hemiplegia, epileptic fits, etc.

Dr. Gilbert Ballet[1] last May contributed a personal observation of a case of exophthalmic goitre associated with paralysis of the ocular and facial muscles, a general anæsthesia, *i. e.*, loss of all special and common sensation, the loss being most profound on the left half of the body—bilateral ophthalmoplegia externa—diabetes insipidus, hysteria, and slight impairment of tongue movements. He *quotes* also a case[2] in which external ophthalmoplegia was combined with Graves's disease, paralysis of the facial, the motor branch of the fifth, and the hypoglossal; no hysterical symptoms coexisted.

Notwithstanding Dr. Bristowe's opposite opinion, I cannot help coinciding with Dr. Ballet in the view that the two patients of the former were the subjects of that functional disturbance we call hysteria, and that the bilateral paralysis of the ocular muscles was of that nature. The association of the ophthalmoplegia with Graves's disease in two of these cases is not opposed to this view, for the latter disease itself belongs to the neuroses or functional affections of the nervous system, and is not infrequently coexistent with hysteria. The important fact is established then, that bilateral ophthalmoplegia externa, although usually an evidence of *organic* disease of the oculo-motor nuclei or nerves, is sometimes a *functional* affection and then is a more hopeful and sometimes a curable affection. The functional variety is of either nuclear origin or more probably depends upon disturbance of oculo-motor centres higher up in the cerebral organism, those perhaps which have to do with volitional motor centres, in the cortex angular gyrus.

It is interesting, in this connection, to note that in these four cases of functional ophthalmoplegia externa, while the external or *voluntary* muscles of the eyes were paralyzed, the internal or *avolitional* muscles were not, the ciliary and the iris muscles continued to perform their reflex and coördinate movements. This is perhaps one very valuable diagnostic difference between functional *bilateral ophthalmoplegia* externa and the more frequent variety due to structural disease.

Amongst many points of interest which this example of bilateral ophthalmoplegia presents, there is one only that I will venture to allude to, as this paper is already too long, viz., the coincidence of the lesion of the motor and sensory roots of the trigeminus which Dr. Seguin,[3] who has also reported an instance, says, on the authority of Dr. Starr, "is almost, if not quite, without precedent."

In conclusion, it may be said that the facts we have mentioned in connection with the etiology of bilateral ophthalmoplegia externa seem

[1] Revue de Méd., May, 1888, pp. 338, 344.
[2] Ibid., p. 363 from Arch. *für* Psychiatrie, B. xvii. Heft. 2, Jandrássik.
[3] Jl. Nervous and Mental Disease, May. 1888, p. 317.

to contradict the statement recently made that such paralysis is always due to central or nuclear disease.[1] We have just seen that it may be also of neural or of peripheral origin, as when due to thrombosis and inflammation of the cavernous tissues, to syphilis, diphtheria, and chronic alcoholism, which may produce either inflammation or degeneration of the oculo-motor nerves themselves. A blow on the head must also be recognized as a possible peripheral cause. Further, the affection may be a purely functional one of hysterical nature and the prognosis be then favorable.

Again, it follows from the facts adduced that bilateral external ophthalmoplegia is frequently at first unilateral and not symmetrical, and it may be impossible to say with certainty whether a unilateral case will become bilateral or not.

Owing to the close proximity of those nuclei of the third pair which preside over the movements of the ciliary muscle and the iris, to those nuclei of the same nerve which regulate the movements of the external muscles of the eyeballs, it frequently happens that bilateral external ophthalmoplegia coexists with bilateral internal ophthalmoplegia; and the circumstance that these nuclei are distinct with functions proper to each accounts for the existence of ophthalmoplegia interna or externa independently each of the other. As a final remark, those interested in the subject of the diagnosis of the several varieties of palsy of the ocular muscles will find a valuable paper by Dr. Allen Starr in the last May number of the *Journal of Nervous and Mental Diseases*. He has there adduced some striking reasons for a new arrangement of the position of the nuclei of the third nerve on the floor of the fourth ventricle differing from both Hensen and Vöelcher's and from Kohler and Pick's.

SUPERNUMERARY MAMMÆ AND NIPPLES IN MAN, MONKEYS, COWS, ETC.,

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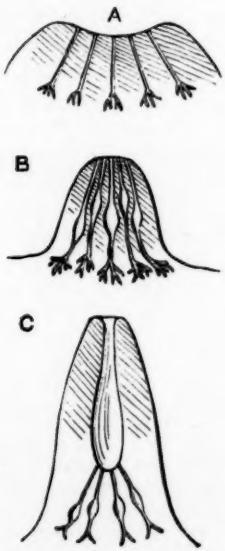
Much that is fanciful and speculative is mixed with the subject of atavism, and the widespread acceptance of the principles of evolution has had the effect of rendering us less critical in the examination of suspected cases. In this short paper I propose to consider briefly the main facts connected with supernumerary nipples and mammæ, for the purpose of showing the care necessary for the proper discrimination of

[1] Dr. M. A. Starr: Journal Nervous and Mental Dis., May, 1888, p. 316; and Trans. Ophthal. Soc. United Kingdom, vii.

atavistic phenomena from counterfeit manifestations; this is not always an easy task, but I trust the facts considered in this communication will indicate clearly the need of such distinction.

Up to the present time supernumerary mammæ or nipples in various stages of development have been reported in the following situations of the human body: the anterior wall of the thorax and abdomen, axilla, arm, shoulder, over the parotid, labium major, and in ovarian dermoids. If we accept unreservedly, that supernumerary mammæ are always atavistic, we force ourselves into the absurd position of imagining ancestors better supplied with milk-glands than even Diana of Ephesus; or if we protect our opinion by stating it in this way: when a mamma occurs in an abnormal situation in man, but corresponds to the normal situation of the mamma in some lower animal of our class, it is then atavistic, we save ourselves much trouble. In many cases the guess may be correct, but it is quite as likely to be erroneous, and as such loose

FIG. 1.



Three forms of milk glands. A. The ducts open on a hairless patch of skin B. The ducts traverse the nipple. C. The ducts open at the base of the teat, the sides of which are elongated to form a conduit for the secretion.

methods of determining the nature of abnormal organs will in the long run lead to much confusion, it is necessary to raise a timely caution, and as this matter may be well illustrated by supernumerary mammæ we will now proceed to consider them.

At the outset we are faced by the question, What is a mamma?

A mamma is a collection of modified sebaceous glands secreting milk and having close relation to the function of reproduction. As a rule, such glands are furnished with a cutaneous papilla, the nipple or teat, which is either traversed by the ducts of the glands, as in Fig. 1, B, or forms a conduit for the milk as in C, thereby affording convenient means whereby the young are enabled readily to suck the secretion. Mammæ without ducts normally occur only in the menohemata. Milk-glands are the distinguishing feature of the class of vertebrata known as mammalia, and are unknown beyond the limits of this class.

Mammary glands are, as a rule, regular and symmetrically arranged along the ventral aspect of the trunk in two rows. When numerous they extend along the thorax and abdomen into the inguinal region. The teats usually correspond to the maximum number of young at a birth, but to this rule there are many exceptions. The greatest number known is fourteen pair. When the number of functional glands is reduced to two, traces of the suppressed mammæ occur as supernumerary or accessory nipples with or without rudimentary glands.

The reduction in number may take place in the thoracic region, leaving the inguinal set functional, as in the cow, mare, goat, and ruminants in general. The inguinal glands may abort, leaving the thoracic set to carry on the work as in man, dugong, manatee, elephants, monkeys, and sloth. Normal mammæ are rarely seen in situations other than the ventral aspect of the trunk, but in the remarkable form *Hapalemur griseus*, Beddard[1] found them on the arm (Fig. 2). In many didelphia the teats are arranged concentrically, and when the number is uneven

FIG. 2.

Hapalemur griseus with its brachial mamma.

the odd nipple may be median in position, as in some opossums. The lemurs present instructive variations. *Lemur catta*, like most of that family and quadrumana generally, possesses a pectoral pair of glands;

[1] Proc. Zoöl Soc., 1884.

Galago has two pair of pectoral teats. The Aye-Aye (*Cheiromys*) possesses an inguinal pair, whilst that remarkable form *Tarsius spectrum* is said to be furnished with an inguinal and a pectoral pair of glands.

Though nipples are present in equal number in the male as in the female, they are rudimentary in character; in rare cases, however, the male gland has been known to furnish milk and in useful quantity. Such cases have been reported in men, male goats, and castrated sheep.

When the mammæ or nipples are increased beyond the number normal for a given mammal, male or female, they are said to be supernumerary or accessory, and may occur in three forms:

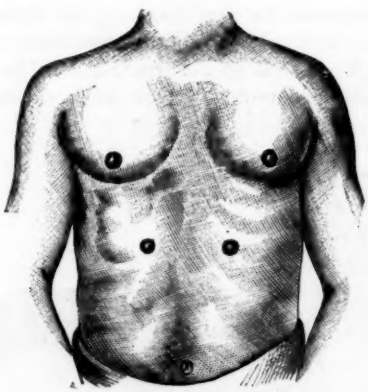
1. Mammæ with nipples.
2. Nipples without mammæ.
3. Mammæ without nipples.

Such mammæ may be due to *atavism*, or arise by *dichotomy* of the normal gland germ, or may occur as a "sport" or spontaneous variation.

It is now our business to study examples of supernumerary mammæ and discuss to which class they belong.

Supernumerary nipples and mammæ are more common in men than in women; indeed, they occur so frequently that Dr. Mitchell Bruce[1] in

FIG. 3.



Two supernumerary nipples in the male. (After LICHTENSTERN.)

three years saw sixty-five examples. Among 207 men examined consecutively, 9.11 per cent. presented an extra nipple, and of 104 women, 4.8 per cent. The extreme frequency of supernumerary nipples in man is now generally admitted.

[1] Journal of Anatomy and Physiology, vol. xiii.

In most instances the accessory nipple is single, is far oftener seen on the left than on the right side, and is in the majority of cases situated on the thoracic wall. In a few instances it is seen on the abdomen, but is quite exceptional. Occasionally they may be symmetrical (Fig. 3). In such cases they strictly follow the line of the superior and deep epigastric arteries, a circumstance which will demand consideration. It has already been mentioned that a comprehensive survey of the disposition of the teats in mammals generally, indicates that primitively they were arranged in two rows extending along the ventral aspect of the trunk in both sexes. In situation they correspond to the course of the superior and deep epigastric arteries. This extraordinary anastomosis effecting a communication between the subclavian and iliac system of arteries is a vascular arrangement peculiar to mammals, and has a close, if not direct, relation with the mammary glands.[1] From this it would follow, from what we know of atavistic phenomena in general, that some of these suppressed mammæ, or nipples, should occasionally reappear in those mammals which now normally possess only a fraction of the number which existed in their ancestors, or in closely allied forms. As far as I

FIG. 4.

Supernumerary nipples in a woman. (After LICHTENSTERN.)

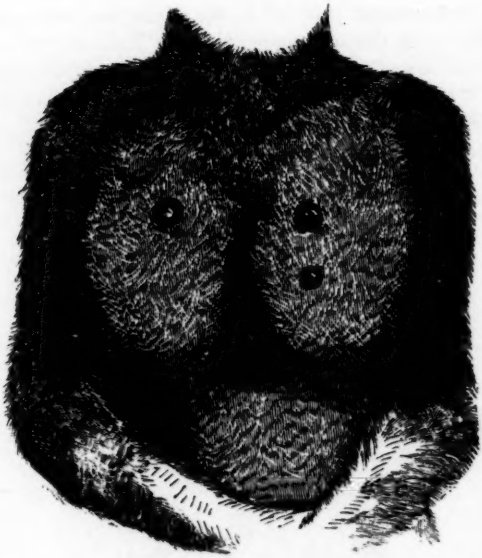
can see, only those supernumerary mammæ and nipples which follow the line of these arteries can be looked upon as reversionary; even in this situation they cannot always be regarded in this light, as I shall presently show.

[1] See Lancet, February, 1887.

We now know that accessory nipples and rudimentary mammæ are extremely common in man, and it occurred to me that theoretically they should be found in monkeys if carefully sought. To this end I systematically examined all the monkeys coming under my notice, and in a very short space of time secured two well-marked specimens.

My first specimen was a female, a Macaque monkey, *Macacus sinius*. On the left side, and an inch below the normal mamma, an accessory and well-developed nipple was seen, associated with glandular tissue (Fig. 5). My second sepecimen came to hand a few months later in a

FIG. 5.



The thorax of a female Macaque monkey with an accessory mamma and nipple.

Patas monkey, *Cercopithecus patas*. This was a male monkey, and the accessory gland corresponded in position to that in the Macaque (Fig. 6). The parts illustrating the malformation are preserved in the Museum of the Royal College of Surgeons.

Among domesticated mammals it is well known that cows present occasionally accessory teats. Normally they are furnished with four, the extra teats being situated behind the posterior pair. In some cases they transmit milk, and cows have been known to furnish milk from seven teats. A medical friend has furnished me with particulars of a

cow with four functional and two rudimentary teats. In consequence of an injury one of the normal teats became obstructed. This accident was compensated for, as one of the rudimentary accessory teats enlarged and was regularly milked.

Fig. 6.

A supernumerary nipple in a male Patas monkey, *Cercopithecus patas*.

Goats normally possess two teats, but it is very common to find four present.

In addition to the varieties just considered, mention must be made of a variety of supernumerary glands which, though occurring in the line of the superior epigastric arteries, are not atavistic. Occasionally in women, but much more frequently in cows, we see a bifid nipple, at other times we find two mammæ coalesced, but with separate nipples (Fig. 7). Such a condition is due to dichotomy or abnormal division of the gland germ. Intermediate stages between two separate glands and a bifid nipple have been recorded. Such are not reversions.

We must now pass on to the consideration of aberrant mammæ. The most favorite situation is the axilla, where they may be found with or without nipples. Our knowledge of this subject has been considerably

advanced by Champneys.[1] This observer has found that the skin of the axilla in parturient women often presents nippleless "lumps" which may attain the size of a hen's egg. These "lumps" do not possess ducts

FIG. 7.

A B

A, a bifid nipple. B, a supernumerary mamma due to dichotomy.

or pores, and though they may be noticed during pregnancy, more commonly attract attention on the third day after delivery; they enlarge with the breasts, and, as a rule, decline on the fourteenth day after delivery. These axillary lumps are limited to the hair-covered region, and occasionally may be made to furnish a milk-like secretion on pressure, but not spontaneously. Champneys also mentions cases in which he found mammæ furnished with nipples containing ducts or pores lodged in the apex of the axilla, from which, after delivery, milk and colostrum could be expressed.

Axillary mammæ have been recorded by many observers, but Champneys' paper contains the most complete account of them, and is valuable from the numerous references it furnishes.

Axillary mammæ, like the normal gland, are liable to become adenomatous, and an interesting description of a case of this kind is given by Mr. A. H. F. Cameron.[2]

An excellent example of supernumerary axillary mamma is represented in Fig. 8, taken from Lichtenstern's classical memoir.[3]

In addition to the axilla, mammæ have been described in the skin of the acromion and on the thigh; in these situations mammæ are extremely rare. The well-known account of a functional mamma on the thigh rests on the authority of a committee from the French Academy of Sciences. Among other curious situations may be mentioned the labium

[1] Development of Mammary Functions by the Skin of Lying-in Women. Med. Chir. Trans., vol. lxix. p. 419.

[2] Journal of Anatomy and Physiology, vol. xiii. p. 149.

[3] Ueber das Vorkommen und die Bedeutung supernumerärer (accessorischer) Brüste und Brustwarzen. Virchow's Archiv, Bd. 73, S. 222.

major. I met with the reference to this in Ahfeld's well-known *Missbildung des Menschen.*

The case is described by Hartung[1] in an "inaugural dissertation." Barth[2] has given an account of a nipple which grew on the face of a maiden twenty years old. The nipple was connected with the skin over

FIG. 8.

An axillary and thoracic supernumerary mamma in a woman. (After LICHTENSTERN.)

the parotid, immediately anterior to the right ear, and was surrounded by an areola and pigmented skin. When handled it became sensibly harder, resembling in this respect the true nipple, and gave rise to similar sensations when touched. At the girl's request it was removed. Microscopically it conformed to the structure of a true nipple, and glandular tissue existed beneath it. Of these various situations there is only one in which the mamma can by any means be regarded as atavistic, and that is on the skin of the acromion; in this instance the justice of its claim may well be questioned. True it is that in *Hapalemur* the mammæ are brachial in position, but the lemurs are aberrant in so very many characters that extreme care must be exercised in drawing conclusions from them in regard to this matter.

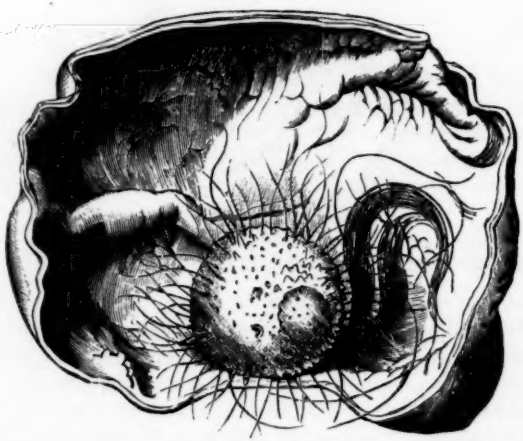
The situations in which supernumerary mammæ occur in the human subject are chiefly remarkable as possessing a goodly crop of hairs, large

[1] Ueber einem Fall von mamma accessoria. Erlangen, 1875.
[2] Virchow's Archiv, Bd. 112, S. 569.

sebaceous glands, or both. As we regard the milk-gland as modified sebaceous glands, so we may regard these aberrant mammæ as "sports" due to excessive development of the sebaceous glands. Some remarkable evidence as to the justice of this assumption is forthcoming from an unexpected source. Those very remarkable tumors of the ovary, dermoids, contain in their lining membrane sebaceous glands far exceeding in size any we find on the skin. Such cysts also often contain in addition tags of skin resembling nipples, and dotted with pores which indicate the orifices of sebaceous glands. Recently I have been enabled to trace in such dermoids every stage from a nipple-like cutaneous tag to a well-developed mamma, presenting glandular tissue, ducts, and a nipple filled with a fluid microscopically identical with milk, and containing colostrum corpuscles.

A striking example is represented in Fig. 9, but for more complete details the student should consult this reference.[1] Such mammæ are

FIG. 9.



A mamma in an ovarian dermoid. (Transactions Pathological Society, vol. xxxix.)

interesting in connection with the following opinion: Mr. A. H. F. Cameron mentions that Laycock suggested that a mamma might make its appearance in any part of the body, and there seems to be a power of producing this particular organ reminding one of the development of hair and teeth in ovarian cysts.[2]

Notwithstanding the scanty evidence which was at Darwin's disposal

[1] Transactions Pathological Society, vol. xxxix. . .
[2] Journal of Anatomy and Physiology, vol. xiij. 152.

when he wrote *The Descent of Man*, he regarded supernumerary mammæ as reversionary phenomena, although he thought the opinion weakened by the occurrence of mammæ on the thigh and back. Since Darwin considered this matter our knowledge has been increased on the subject a thousandfold. It seems to me perfectly clear that a careful analysis of the evidence shows that accessory mammæ may arise in the three ways I have endavored to indicate, viz., by (1) atavism, (2) as "sports," (3) very rarely by dichotomy; and such is the object of this paper.

A CASE OF PERICHONDRITIS OF THE CRICOID CARTILAGE, WITH PARALYSIS OF THE CRICO-ARYTENOIDEUS POSTICUS MUSCLES.

Post-mortem Results Appended.

By H. L. Swain, M.D.,

Lecturer on Diseases of Ear and Throat in the Medical Department of Yale University.

The patient, aged twenty-two years, a waiter in a restaurant, entered the New Haven Hospital on the 5th of May, 1888, presenting the history and the existing characteristics of a perfectly typical case of typhoid fever.

Of his previous history all that is at present accurately known is contained in the records of the Hospital for the previous year, 1887, which show that about the middle of June he was entered as a patient on the surgical side of the house, suffering from an abscess on the left side of the neck, which was situated near the insertion of the sterno-cleido-mastoid muscle of that side. In spite of careful treatment the healing process was slow, and as late as November of the same year there were still sinuses with small pockets of pus present. Dr. William H. Carmalt, senior surgeon to the Hospital, then did what was possible to do in the way of slitting up the sinuses and removing the old caseous matter which had gathered in some of the small pockets already referred to. As a result of this procedure, the patient got nearly well, and passed from sight. The parts, however, had healed subsequently and on his second appearance at the Hospital nothing but the cicatrices remained.

As before stated, the illness for which the patient was brought a second time into the hospital was an every-day case of typhoid fever, and the only symptom which I will mention as not being always present in such cases was marked hoarseness. As a slight bronchitis was present, this symptom did not receive much particular attention, and during the weeks that followed was lost sight of. On recovery of the patient so as to be able to talk, the hoarseness seems to have improved, as it was not prominent.

Toward the first of June, after a not very severe illness, convalescence seemed assured, and by the second day of that month was fully established, the records of the case showing the temperature as having been

about normal for several days past. On the 6th of June, in the morning, considerable hoarseness is recorded, which toward evening was more marked and accompanied by a somewhat labored but not more frequent respiration. In spite of treatment this condition of the throat did not improve, either then or on the following day. The evening of the 8th was marked by a decided rise in temperature to 102° Fah., and soreness of the throat was complained of by the patient, although he could not locate it in any one part. The cough again became slightly prominent, while the respirations were decidedly more labored, being almost croupy. Examination of the chest gave negative evidence as regards any complication there. Under active treatment, counter-irritants locally applied, diffusible stimulants, gargles, etc., a comfortable night was passed, and symptoms improved until the next morning when a sudden attack of dyspnœa occurred. Respiration, especially the inspiratory act, seemed very much interrupted, and almost complete aphonia was present. Temp. 101:8°; pulse weak and slow, 76 per minute. A consultation was called by the house physician, Dr. Robert Bradley, of Drs. Carmalt and S. D. Gilbert, who found the obstruction and the respiration to be laryngeal, the chest yielding entirely negative results, although the attack somewhat resembled an asthmatic dyspnœa. Examination of throat showed no false membrane. Turpeth mineral was administered, and the emetic effect relieved the dyspnœa. Examination of the throat next day by means of the laryngoscope revealed nothing further except there was no œdema, or marked swelling of the glottis. The respirations were, however, extremely labored, although apparently amply supplying oxygen to the lungs. In the evening another sharp attack of dyspnœa was again relieved by the use of emetics. Temperature lower than yesterday.

The following day, no improvement having taken place, on consent of the consulting physicians including Dr. Thacher, the writer was requested to examine the state of the larynx.

The status of the patient at that time was as follows: The sufferer was lying partly on one side, the right, in a half-reclining position, breathing very laboriously about twenty times to the minute. Each inspiration was accompanied by a croupy sound, almost like a whoop, which was audible at a considerable distance and presented no characters due to the presence of mucus or other exudation. Each expiration was easy and almost noiseless. There was some sinking in of the parts in the supraclavicular region on inspiration. In attempting to speak, the inspiration was much more difficult, and phonation was very imperfect. The sounds produced were very rough, and the cough "barky." The words were pronounced clearly, and the tone was not a whisper, but a distinct, loud sound. Chest had just been examined with negative results. Dyspnœa was agreed by all to be evidently laryngeal, and paralysis of some of the larnygeal muscles had been suspected. Examination of the neck revealed larynx not swollen, freely movable, not tender on pressure. Outer surface was reddened by counter-irritants. No tumor or abnormality could be demonstrated in the vicinity of the larynx, or its recurrent nerves, save the cicatrices spoken of in the first part of the history as occurring on the left side of the neck over the sterno-cleido-mastoid muscles. The nature of these was such that it was not thought possible that they could in any way involve the recurrent nerve of that side, and there were no enlarged glands or indurated spots to be found

that could press on that nerve. The pharnyx was somewhat reddened, but presented no evidence of false membrane.

The laryngoscope revealed the larnyx markedly congested throughout the whole anterior. The reddened chords were in complete contact in the phonation position, remaining without attempt at motion during inspiration; during expiration showing a slight response to the outgoing air. The processus vocales were, however, rotated somewhat outward, slightly abducted, and through the very small opening thus made the inspired air found its way into the trachea below. No appearance of any marked swelling of the mucous membrane of the arytenoid cartilages, posterior commissure, or ary-epiglottic ligaments. False vocal chords not infiltrated. There was no ulceration visible.

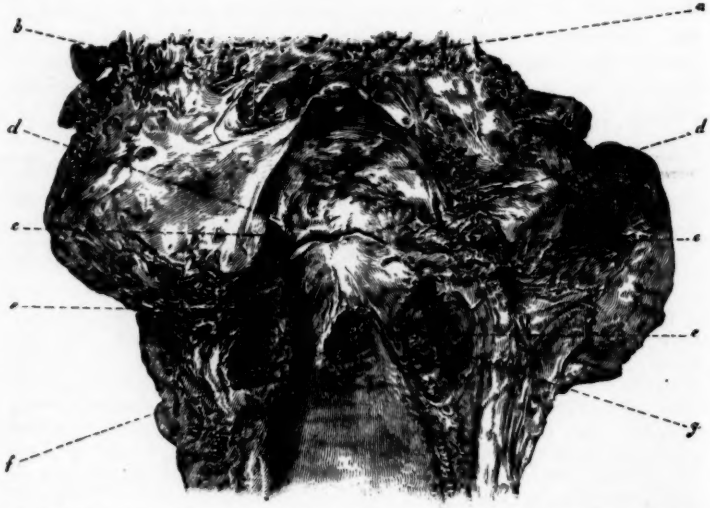
The diagnosis was given as paralysis of the crico-arytenoideus posticus muscle. The cause of the paralysis, since we could find no pressure or other interference with the recurrent *nerves*, was referred by the writer as a sequela to the typhoid fever, he having remembered a case reported somewhere in literature, in which this construction was the only possible one. (The case referred to is in Ziemssen's *Handbuch*, Band iv. Erst. Abth.) The evident inflammation in the larynx seemed entirely inadequate as an explanation, although in the case of the muscular affection due to the fever it would have been an exciting cause. A question raised by Dr. Carmalt, was whether there might not be some subglottic obstruction which would account for the immobility of the vocal chords. Of this we could and had seen nothing, so it was put aside, the position of the chords accounting sufficiently for the dyspnœa. No perichondritis could be assumed to exist, it having presented no evidences of itself up to that time.

The diagnosis being settled as fairly as possible, tracheotomy, the only relief, was performed on the following day by Dr. Carmalt. The collapse which had supervened just previous to the operation was readily controlled after the dyspnœa was relieved by the introduction of the tube. From the very first the relief to the patient in breathing was complete, and save for a slight erysipelatous blush on the 15th, which soon passed away, the history for the next ten days was uneventful. There was considerable bronchitis, but the tube was well borne, and the patient gained in strength each day.

At this juncture Dr. Thacher and the writer examined the larynx once more. The patient was walking around, breathing easily, and could articulate with comparative distinctness by stopping the tracheotomy tube. A change had taken place, however, in the larynx. The redness was somewhat less, but there was a marked swelling over the left arytenoid cartilage, aryepiglottic fold, and posterior commissure. The left arytenoid cartilage seemed somewhat elevated and forced somewhat past the median line toward the right side, and this, with a slight swelling of the left false, concealed the true vocal chord almost entirely from sight. The right vocal chord was visible, and an attempt to assume the median position was evident on phonation, the position of its fellow, however, hindering the motion. Evidently a perichondritis was present, but its cause was, of course, doubtful.

At the suggestion of Dr. Thacher, a small mirror was ordered, of a size enabling us to pass it through the tracheotomy opening, and look upward into the inferior portion of the larynx. Unfortunately, this arrived too late for service, for on the night of July 1st symptoms of suffocation came on suddenly, and blood was expelled from the opening in the trachea, at first through the tube, later through the wound itself. The re-cleaned tube failed to relieve, and in a few minutes death ensued. Tracheal hemorrhage had supervened, although on going to sleep everything was as it had been for days past. All efforts to assist in getting rid of the blood were without avail.

The *autopsy*, July 3d, by Dr. M. C. White, pathologist to the Hospital, revealed outside of the respiratory tract nothing which is not usually found in cases of death during the convalescence from typhoid fever. In the right bronchus was about half an ounce of clotted blood, extending downward from the bifurcation. No lesions were present in the lungs or heart, nor could any point be found from which the blood could safely be said to have come.



a, Posterior surface of tongue, roughened by papillæ. *b*, Epiglottis. *c*, *c'*, Arytenoid cartilages—*c* somewhat enlarged *d*, *d'*, False and true vocal chords. *e*, *e'*, Cavity of abscess; containing loose bit of necrosed cartilage. *f*, Tracheotomy opening. *g*, The end of the cricoid cartilage.

On the posterior wall of the larynx, between it and the œsophagus, below the level of the vocal chords, was an abscess about as large as a walnut, and containing caseous matter. The larynx and œsophagus were removed and the former opened from behind in the usual manner, the cut dividing the abscess in two. The accompanying photograph, taken by Dr. M. C. White, from the specimen preserved in alcohol, shows the abscess divided into two parts, *e* and *e'*, one on either side of the specimen; *e'* will be seen to contain some of the caseous matter mentioned, which on closer examination proved to be made up of quite a good sized

piece of necrosed cartilage and other detritus. The abscess involved the cricoid cartilage, and on close inspection of the photograph the free end of the cartilage will be seen, g, on the edge of the abscess on the right side. Here the cavity of the abscess is situated wholly on the laryngeal and inferior surface of the cricoid cartilage. On the other side one finds no projecting portion of cricoid cartilage, and the left arytenoid, c, seems freely movable in the superior wall of the abscess, although its substance does not seem to be involved in the necrotic process. By probing deep into the abscess cavity of that side one finds at the anterior extremity of the cavity the end of the cricoid cartilage; in other words, the abscess seems to have involved completely the left half of the cricoid cartilage, posteriorly, and to have destroyed a not inconsiderable portion of it. The comparison of the two arytenoid cartilages shows the left, c, to be distinctly larger. The true and false vocal chords, d and d', seem to be intact save for a very small ulceration on the lateral surface of the processus vocalis of the right side. At no point is there any indication of an opening into either larynx or œsophagus, on the part of the abscess.

We had, therefore, in this case to do with a perichondritis of the cricoid cartilage, which by a slow process led on to suppuration and necrosis of the cartilage. This in time, by virtue of involving the inferior and posterior surfaces of the cartilage, caused the posticus paralysis, and that, previous to the time when any marked swelling could be seen by the laryngoscope. This process then displaced the arytenoid of the left side in its progress, and gave rise to the changes which were noted in the writer's second examination of the case. The final act in the drama was brought about in some at present inexplicable way, for the hemorrhage does not appear to have come from the tracheotomy wound, as the anterior walls of the larynx and trachea are not blood-stained. The fact of the right bronchus being the one filled by the clot is rather for than against the blood having come from above. No tubercles were to be found and no minute aneurism, such as might have occurred in the right lung, and by bursting given rise to a hemorrhage. The clot did not extend very far into the smaller bronchi.

The peculiar features of the case are: first, the fact of such an abscess existing for so long a time, and causing such marked changes, and still giving rise to no symptoms of dysphagia; second, that the postici muscles should have been paralyzed before any marked endo-laryngeal swelling was manifest; third, that no change appreciable externally had ever been noticed; fourth, the manner of death, and its difficult explanation, owing to the negative post-mortem results.

In closing, I desire to thank the gentlemen mentioned in the paper for access to the hospital records, and other kindness tendered me in preparing this simple report of the case in question, as also for the photograph which so admirably explains itself.

A NEW KNIFE FOR THE EXTRACTION OF CATARACT.

By Edward Jackson, A.M., M.D.,
PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC.

No one who has closely observed the healing of wounds in any part of the body needs to be told that perfect approximation and complete union by first intention are only possible when the opposing surfaces are smooth and uniform. Every inequality of the surface tends to prevent perfect apposition, and maintain accidental displacements indefinitely; and where inequalities are present the process of healing must be prolonged, to include the rounding off of projections and filling in of intermediate depressions; it being generally impossible to make all the projections of one lip of the wound fit accurately into the depressions of the other, to which they correspond.

The cornea being non-vascular, all material for the repair of its injuries must be drawn from a comparatively distant base of supplies; and it becomes of the greatest importance that the amount of such material required should be kept down to the minimum. The operator cannot too highly appreciate the importance of making a perfectly smooth corneal incision for the extraction of cataract, so that its lips will come into perfect apposition, ready to adhere at every point; not only to secure rapid healing, but to keep down the subsequent astigmatism due to cicatricial contraction of the new material poured out to occupy the gap.

The Beer's knife, once universally employed in cataract extraction, still preferred by some operators, and recently growing again in favor with others, was admirably adapted to secure smoothness of the corneal incision. Being once properly entered, it only required to be pushed steadily forward, acting as its own guide, until a necessarily smooth section of the cornea was completed. The "Holzschnitt" of von Jaeger, recently advocated by Dr. B. A. Randall (*Trans. American Ophthalmological Society*, 1887, p. 505), has something of the same advantage. When, however, the point of the Beer's knife is once fairly entered the direction and shape of the incision are fixed and cannot satisfactorily be changed; although until the incision is well advanced the point of the knife, unguarded in the anterior chamber, may, by a sudden movement on the part of the patient, be thrust through the iris or into some unintended part of the cornea, damaging the eye or hindering the completion of the operation.

Graefe's knife has largely superseded Beer's because it is safer and more manageable. With it, after the puncture has been made, we are

still free to make the counter-puncture where we please, and the counter-puncture being the next step in the operation, when it has been made the point of the knife has been carried out of the anterior chamber away from any possibility of doing harm. When the two ends of the incision have thus been fixed, there is comparatively little danger of its distortion or misplacement by unsteadiness on the part of the patient; and the only serious accident liable to happen is the falling of the iris before the edge of the knife, with the rapid escape of the aqueous humor. But with the Graefe knife, unless special care is taken to avoid it, one will push forward the whole available length of the blade without completing the corneal incision, which must be finished by a sawing motion, or a considerable withdrawal and second forward thrust; causing always one or more irregularities in the lips of the wound to interfere with perfect apposition, and rapid, smooth healing. When, however, the incision is completed at a single thrust, it is by the exertion of a distinct dragging force, that makes the fixation of the eye difficult, and which must be applied with perfect steadiness and continuity, or changes of direction in the cut, making angles in the lips of the wound, will result. With the Beer's knife perfect fixation is more of an essential, but it is more easily attained. Its wedge shape causes a slight force thrusting it forward to exert a much greater cutting force, which is balanced by an equal thrusting of the smooth rounded back of the knife against the angles of the wound; the slight forward thrust being all that tends to displace the globe, and requires to be met by the fixing forceps or fingers. And experience shows that the tissue that sustains the balancing pressure exerted by the back of the knife, is not in the least damaged by it.

The instant that one starts with the Graefe's knife to cut through the bridge of tissue that remains when the counter-puncture has been made, the back of the knife is withdrawn from the angles of the wound and the aqueous humor escapes. But with the Beer's no such withdrawal occurs, the knife continues to occupy the whole of the wound until the section is completed, and the aqueous may be retained throughout, or allowed to escape quite gradually. The advantages of the Beer's knife, then, are, smoothness of incision, ease of fixation, retention of the aqueous; of the Graefe's knife, more complete control of the incision, and lessened liability to accident or hindrance, from unsteadiness on the part of the patient. The advantages of the latter depend on its narrow point; of the former, on the widening of the blade so that it continuously fills the incision. May not the two be combined in one knife?

For the past year I have been using the knife represented by the accompanying figure. It seems to answer the above question affirmatively, and to have no serious defect to offset its merits.

The point, and the part next the point, for a distance of fourteen

millimetres, resemble exactly the same portion of a Graefe's knife. Then there is an angle *in the back* of the knife, and the blade widens evenly like a Beer's knife until it reaches a width of six millimetres at twenty-eight millimetres from the point, where it terminates.[1]

With this knife an incision could be made as with a Graefe knife throughout. But it is designed so that after the puncture and the counter-puncture have been made, when the point of the knife is well out of the anterior chamber, and the extent of the incision has been fixed beyond any chance of mishap, to complete the incision, as with a

Beer's knife, by a steady forward thrust. One can with this knife, as is often done with the Graefe's knife, introduce the blade parallel to the plane of the iris, and after making puncture and counter-puncture, rotate the cutting edge forward before completing the incision. But to get the greatest smoothness of the lips of the wound I have always tried to introduce the knife with its cutting edge in the direction in which I wished to keep it until the incision was completed. The dimensions above given are those adapted to an incision which commences somewhat back in the overlapping scleral tissue, and has its centre fairly within the clear cornea; an incision rather long from side to side, but not very deep vertically.

This knife was shown at the meeting of the American Ophthalmological Society, in July last. In the August–September number of the *Centralblatt für Augenheilkunde*, Dr. Inouye, of Tokio, Japan, describes and figures another form of knife, which he has devised to combine the advantages of the Beer and Graefe knives. In it the widening of the blade is brought about by a concave curving of the cutting edge, a method which seemed to me open to the serious criticism that it would be more difficult to keep the knife perfectly sharp. The same objection applies to the plan of having the angle in the cutting edge.

The advantages of the knife I have described are:

Control and safety of incision, through puncture and counter-puncture.

Smoothness of the section, through its completion by one forward thrust.

Retention of the aqueous until near the completion of the section.

Ease of fixation, through the counter-pressure of the back.

A shape of cutting edge most readily kept in good order.

[1] Made by Lentz & Sons, 18 N. 11th Street, Philadelphia.

REVIEWS.

A System of Gynecology. By American Authors. Edited by Matthew D. Mann, A.M., M.D. Volume II. Illustrated with four colored plates and three hundred and sixty-one engravings on wood. 8vo. pp. xiii., 1180. Philadelphia: Lea Brothers & Co., 1888.

The second volume opens with a paper by Dr. Carroll Lee on "Diseases of the Vagina." Dr. Lee first considers vaginitis, and at the outset denies the existence of specific, or gonorrhœal, vaginitis. As the latest authoritative utterance upon this subject the claim is important. Such a claim is, in no way, inconsistent with the theory of Noeggerath of "latent gonorrhœa," or of the infecting nature of its pus. This is true of pus from any source.

It is simply necessary to give the contaminating secretion in the uninfected individual the habitat of its origin in order to reproduce the infection. We cannot find any fault with Noeggerath's theory; it is simply the terms with which it is expressed. A cause cannot be called latent that never ceases to act so long as it is present. No one would call gleet a latent clap. It is clap, pure and simple; and differs in quantity, not quality. Gonorrhœa in women is far more costly to life and health than syphilis. The only singular thing about it is that we should observe an event in disease as common as a catarrhal cold for a matter of two hundred years or more, and know nothing about it until gynecology pointed out the way. It came with what we may call realism in science. Medicine is more and more becoming the science of real things, not of opinions or theories. In this age every man who will leave his mark upon the science of his chosen field is to it what Zola or Tolstoï is to literature.

Malformations, vaginismus, displacement of the vaginal walls follow in their order. In the latter relation Emmet's operation for diminishing the size of the vaginal outlet is described, and although well illustrated, proves the impossibility of giving a clear working idea of this operation to one who has never seen it. Emmet's operation narrows the outlet, but does not restore the perineal body. The operation is not commonly made; but when it is brought into active competition with the more common operation we will know more about the value of the perineal mass as a sustaining force. Rupture of the vagina, hematoma, and neoplasms conclude a valuable contribution to the book.

The Editor has been fortunate in securing Dr. Engelmann as a contributor in a field that he has made his own. The author opens the vexed question of uterine reflexes without any attempt to evade the issues from the general practitioner's standpoint in the following definition. "By the term hystero-neuroses, I have designated those phenomena which simulate a morbid condition in an organ which is in an

anatomically healthy state, and which are due not to structural changes in the organ in which they appear, but to morbid or physiological changes in the uterus or ovaries." The context to this, while it may answer as a general statement until we know better, does not fulfil the demands of a definition. "The hystero-neurosis is a sympathetic hyperæsthesia, the result of reflex action." The specific condition is not always a phenomenon of the reflex, as a little attention to the author's contribution will show. As limited space will prevent anything like an extended notice of the one hundred and fifteen pages of the author's elaborate contribution, we must content ourselves with the opening statement, which will give the reader a good general idea of the limitations Dr. Engelmann places upon uterine reflexes; we quote:

"The irritation of the ganglionic nervous system caused by the morbid changes in uterine and ovarian tissues is most readily conveyed to the spinal and cerebral centres, following sometimes one, sometimes another path, and results in the lumbar and hypogastric pains, in the burning or pain in the top of the head or back of the neck. Most intimate is the connection of the ganglionic with the vaso-motor nerves. By their connection with the vagus are brought about the palpitations of the heart, the nausea and vomiting by which the stomach tells of uterine changes. The anastomosing fibres of the solar plexus account for the gaseous distention of the abdomen, the constipation and diarrhœa by which uterine changes find expression. These symptoms are entirely distinct from the transitory and variable ones of hysteria, which I am inclined to place among the cerebro-spinal affections, and which are but indirectly influenced by the uterus and its annexa. As hystero-neuroses, I consider only such appearances of disease, without structural changes in the organ in which they occur, which are the direct results of reflex nervous influence, depending upon changes in uterus or ovaries, coming and going, aggravated or improved with corresponding changes in the determining causative disease."

While the author is probably right concerning the cerebral origin of the perversions of consciousness and sensation, termed hysteria, yet he does not make it clear to the average medical mind how he made the distinction between hysteria and hystero-neuroses by simply placing the former among the cerebro-spinal affections, knowing, as we do, how deeply the purely cerebral functions are sometimes involved in ovarian changes. The author adds the following limitations which are important:

"We must strictly eliminate coexisting symptoms and symptoms arising from direct mechanical causes; thus, the stiffness of the leg, with the shooting pain which follows the course of the nerve, often found in ovarian and peri-uterine disease at the time of the menstrual period, is not an hystero-neurosis, not a reflex nerve symptom, but the direct result of pressure by the congested tissues or the enlarged ovary upon the pelvic portion of the nerve; frequent and painful micturition, as it is observed during the menstrual period, may be a neurosis pure and simple, but it is more frequently the result of increased pressure of the congested uterus upon the urethra and bladder."

While there are many gynecologists who will dissent from the theory advanced in the latter part of the above quotation, yet, on the whole, the author's views are sound. The elaborate contribution is timely, and will do much to clear up the obscure places in the symptomatology of uterine disease.

"Extra-uterine Gestation" is the contribution of Dr. T. G. Thomas. Of this eminently practical paper we have space to give only the summary of the author's views upon treatment. His conclusion is: "A diagnosis

of extra-uterine pregnancy being arrived at, destroy fœtal life as promptly as possible." For this purpose he advises the use of the galvanic or faradic current, without puncture, the future treatment by laparotomy being favored by the rapid decline in vascularity that follows fœtal death.

"If, after rupture," he further states, "the case progresses favorably, behaving like an ordinary one of hæmatocele, laparotomy should be avoided and the efforts of nature encouraged and relied upon. In my thirty-three cases, I have had one of unquestionable sac-rupture entirely recovering under this plan. Should the pregnancy have advanced to full term and the child die, as it always does at this time from the spurious labor which then occurs, the surgeon should quietly await indications for interference, feeling assured that as time passes the placenta is probably shrivelling, and all the parts becoming less and less hyperæmic."

In conclusion, he says, "In twelve cases, a little less than one-half of all the cases seen by me, electricity was employed as a fœticide; of these, all recovered." This paper may be said to define the American method, so far as we can be said to have a method, of the treatment of ectopic pregnancy. We know of but one native gynecologist who advises the universal resort to laparotomy in every stage of ectopic pregnancy, and he had what we may call the misfortune to have had—a successful case of recovery after laparotomy.

Dr. Samuel W. Gross contributes the section upon "Tumors of the Breast." Dr. Gross's paper is splendidly illustrated and complete in its descriptive parts, and amounts to nearly a volume in itself. The tone of the paper is very encouraging to surgeons to remove carcinoma by the most radical methods with wide skin and axillary dissections, even when flaps are insufficient to approximate and extensive areas have to repair by granulation.

"Diseases of the Breast other than Tumors," is contributed by Dr. Roswell Park, comprising congenital defects and excess, irregular or abnormal secretion of milk, hypertrophy, atrophy, injuries, inflammatory affections, mastitis, fistulæ, tubercles, and syphilis.

A good paper, ample in its working details, is given by Dr. E. W. Jenks upon "Fistulæ." The historical portion is very complete, both in description and illustration. The author has expended a large amount of labor upon his paper, and it is in every way worthy of this painstaking gynecologist.

Dr. William H. Baker, of Boston, takes up the "Diseases of the Bladder and Urethra." The author follows Skene very closely, and the latter follows Winckel, with the result of making this section of the book more conventional than there is any need of being, as Dr. Baker is both original and has plenty of ideas on all gynecological subjects. The truth is, that the surgery of the female urethra and bladder is at least one generation behind that of those conditions to which they are congeners in the male.

Dr. Sutton writes upon "Non-malignant Tumors of the Uterus." The author does not make any attempt to harmonize the conflicting views of intra- or extra-abdominal treatment of the uterine stump in abdominal hysterectomy. We are safe in saying that here alone have we any serious doubts as to methods concerning abdominal surgery. It will be soon worked out, but the time is not yet ripe for the author of such a *résumé* as that of Dr. Sutton to pass under judicial review the conflicting

testimony upon the subject. Dr. Sutton has wisely refrained from this tempting phase of the subject, especially to one of such positive views as the author upon most surgical subjects. Good working descriptions of the different methods are given; and the whole subject is characterized by good common sense, making a valuable contribution to the volume.

Dr. Lusk takes up the consideration of the hopeless subject of "Malignant Diseases of the Uterus" with courage. We think Dr. Lusk wisely says: "The legitimacy of total extirpation in the treatment of carcinoma uteri is no longer called in question." The operation as performed by experts shows a mortality of 15.1 per cent., and a mortality based upon a much larger array of cases, but gathered from a miscellaneous number of operators, give a fatality of 24 per cent. Most clearly from this it appears that vaginal uterine extirpation is an operation for the gynecological expert, and upon the results only of such should we base any conclusions. Yet the gynecologist, rarely getting his cases at first hands, finds few opportunities to perform the operation under the most favorable conditions. Any suspicion of the invasion of near parts renders the legitimacy of the operation doubtful, and when the invasion of vaginal and connective tissue relations of the organs is evident, the operation offers even less hope of doing good than the combined use of the curette and chemical cautery, especially as the latter method gives great facility of treating the relapses, while with the former the gynecologist has reached the limit of his usefulness. An ideal case for vaginal hysterectomy would be when the disease was rigidly limited to the vaginal cervix, and the woman had passed the climacteric. Even here the curette and chemical cautery very generally give permanent results.

Dr. Bache Emmet gives us the section upon "Lacerations of the Cervix Uteri," and if we cannot have T. A. Emmet upon this interesting subject we prefer it at the hands of the present author. The only criticism that can be made upon this article is, that this opportunity should have been taken to give authoritative expression to the fact that Emmet's operation is not made simply to draw together, and retain in that position sufficiently long to heal, the lacerated edges of the cervix. That is only one idea of the operation. But the operation is given curative value from the fact that masses of cicatricial tissue on the edges and at the back of the rent are removed when the operation is properly made; while, on the contrary, if the mucous membrane only is removed, the indurated tissue being left, the patient, either in local or general symptoms, is in no way made better. In reading descriptions of the operation it is quite common for the operator to say that he removed the mucous membrane and brought the edges of the laceration together; and from the results frequently observed there is no doubt that this is all that he did do. As a matter of fact, we do not get widespread reflex symptoms until the cicatricial margins of the rent develop. This is the reason that we are frequently aware of extensive injury to the cervix, while the general health of the woman is unaffected, and, aside from cervical catarrh, no local symptoms are observed. If we inquire into the reason of this, we will note that induration has not yet taken place, and the torn edges are soft and congested. Observe the same subject when she comes to you later, as she surely will, complaining of new local and general symptoms, and on examination we will find that a revolution has taken place in the condition of the rent, the edges have become pale and indurated with a plug of hardened tissue at the bottom of the rent. Thorough removal of these

masses oftentimes makes a difficult and bloody operation, as it is a very common matter to open pumping vessels at the fornix of the laceration.

This we claim is the proper import of trachelorrhaphy, and such, indeed, is the teaching of Emmet, and the author says so in the present contribution; but it is taken, in a large measure, for granted that such is the understanding on the part of the profession. We are satisfied that such is not the case, and the present would have been an excellent opportunity to correct, in an article written under the inspiration of the great master himself, what we believe to be a growing error. The operation is well described, but the operation, as illustrated, is difficult to understand from the cuts. Dr. Bache Emmet writes so well that it is to be regretted that we do not see more from his pen.

Dr. Busey writes the chapter on "Chronic Inversion of the Uterus." It is a well illustrated *résumé* of the subject.

Dr. Howard Kelly contributes a well-written and finely illustrated chapter on "Injuries and Lacerations of the Perineum and Pelvic Floor." Many of the cuts are new and carefully studied with a view of the working details of the various repair operations required by the parts. It is one of the most complete contributions to the work.

Dr. William Goodell takes up the subject of "Ovarian and of Extra-ovarian Tumors." The author's description of the operation of ovariotomy is entirely characteristic, and as his work is so well known through society reports, it may be passed without critical notice.

Dr. Robert Battey and Dr. Henry C. Coe, of New York, enter jointly into a description of the "Diseases of the Ovaries." The former takes up the subject of Battey's operation, and begins by defining the limits, not so much of the operation itself, as of the results to be obtained by the proceeding so called. If we were to permit Dr. Battey to define the operation, which he thinks ought to be called by his name, he would apply it to a surgical procedure of a mythical character. For instance, he says, "it is not an oöphorectomy, nor is it simply the removal of appendages from the uterus; but it is a surgical procedure by which we aim to bring about a great physiological change in the system of the patient for the remedy of disease." He goes on to make a bad matter worse by the succeeding context. "The natural change of life which occurs at the climacteric is in no sense a 'spaying' or castration of women, and it is quite as inappropriate to attempt to apply either of these terms to the artificial change of life which attends Battey's operation.'"

Battey's operation is not then, according to its author, any definite surgical method, but rather the *results* to be attained by any surgical proceeding whatever. It has a striking resemblance to the specifications under the Bell telephone patents. All of this is equivalent to saying that Dr. Battey is a good surgeon but a poor lexicographer, who does not mean all that he says, for, if we examine the surgical method by which he hopes to attain this end we will find that it is of one definite character, namely, the removal of the ovaries through either a vaginal or abdominal opening. Dr. Coe takes up in the second section the "Diseases of the Ovaries," which is exhaustive, well illustrated, and well written.

Drs. Coe and Wylie jointly write the description of the "Diseases of the Fallopian Tubes;" the former talking up the pathology of the subject, and the latter the surgical treatment. Of course, Dr. Wylie is

nearly aggressive in the expression of his opinion concerning salpingitis as a nearly ever-present disease in women. He says:

"In my opinion, when the frequency and the gravity of diseases of the Fallopian tubes are generally understood the occupation of the mechanical pathologist, who assumes that most of the ills of women are due to uterine displacements, and that their ailments will be overcome when version or flexion is corrected and the uterus held by a pessary in an ideal normal position—will be substantially gone."

Among the gynecologists of Dr. Wylie's acquaintance, we do not believe he can name a man who corresponds to the description we have just quoted. As a matter of fact, the one-idea men in gynecology are the laparotomists. It is an extraordinary thing that an operation that is now successfully made at the country cross-roads should be allowed to dominate a large section of gynecologists. We know an eye doctor who is quite successful as a laparotomist, but always fails when he attempts the repair of the perineum. Dr. Wylie has had up to January 1, 1888, one hundred and fifteen operations for the removal of the appendages with six deaths; which makes the operation nearly equal the dangers of ovariotomy in good hands. The mortality was in his early operations. That the operation has its field of usefulness no one can doubt, the only difficulty is that a man can give up to the idea of salpingitis as a basis of gynecology and, much to his own mental damage and the good name of his calling, hold in contempt all who differ from him.

One of the most elaborate articles of the volume is by Dr. Stephen T. Howell, of Buffalo, on the "Pathology of Ovarian Tumors," extending over one hundred pages. It is well illustrated by new cuts, and forms a useful addition to the literature of the subject.

Dr. Mann, of Buffalo, contributes the "Clinical History and Diagnosis of Pelvic Tumors other than Uterine and Tubal." This section could well have been omitted, as each previous author had gone with sufficient elaboration into the subject of diagnosis. The subject of differentiation of pelvic tumors is placed well in view, a matter worth considering in such a large and crowded volume.

The carping critic will, in all future generations, be unable to say that the American System of Gynecology was written in the interest of the mechanical school. The vexed subject of "Displacements of the Uterus" is disposed of by Dr. George T. Harrison in sixty pages, including history, pathology, etiology, treatment, mechanical and operative; with Emmet's, Alexander's, and Byford's operations. The author is very positive in his opinions, which we hope may be valuable. But it certainly must be a source of regret that a matter in which the family physician is so much interested should be given such limited consideration in a volume in which he is supposed to be especially interested. We regret, exceedingly, that any opinion unfavorable to either the utility or scientific value of an article has to be expressed where everything has had such exceptional value and merit, but we believe that every scientific gynecologist will join in the dissent from both the matter and manner of the author's treatment of this subject.

We may well feel gratified at the completion of a work that from the very beginning of the idea of a system of gynecology, was full of difficulties. Dr. Mann has acquitted himself well of a laborious and diffi-

cult task; while gynecology for all peoples and times has been enriched by the material gathered together in the two volumes that compose the work. Of the many systems of late by coöperative authorship, none shows such consistent and even work, where idea and methods fuse so evenly that differences of opinions are scarcely noticed. It is a good work from the hands of good and earnest men and as such will endure and keep its place. E. V. DE W.

DIE TRAUMATISCHEN NEUROSEN. Von DR. HERM. OPPENHEIM. Pp. vi. 146. Berlin: A. Hirschwald, 1889.

THE TRAUMATIC NEUROSES. By DR. HERMANN OPPENHEIM.

THIS excellent little brochure contains an admirable summary of the present knowledge concerning those forms of neurosis which follow injuries; and it may be commended, not only to the medical reader, but to those members of the legal profession who interest themselves in the forensic aspects of railway injuries.

In the introduction the author traces the progress in the knowledge of these affections from the time when Erichsen first called attention to them in his work entitled *Railway Spine* (1868) down to a recent date, when the underlying condition has been recognized as a functional affection of the entire nervous system, but more especially of the brain. The references to the literature of the subject are quite complete, and full justice is done to the important contributions of American authors to this class of affections.

The material upon which the work is based consists of a large number of cases which have come under the author's observation in the Charité Hospital of Berlin; and thirty-three of these cases are carefully described in the second chapter, which forms an important clinical contribution to this subject. In the remainder of the book the kind of injury producing these neuroses, the special symptoms manifested, and the prognoses and treatment are very concisely described.

Severe concussion of the nervous system is usually produced by the jar of railway collisions or by the shock of railway accidents. The patient is thrown from his seat against the car or tossed to and fro, and, although it is admitted that a stretching of the ligaments about the spine, or even laceration of the muscles may occur, yet, as a rule, the external evidences of injury are very slight, or may be absent. But lesser injuries may cause the same effects. Thus, accidents occurring in factories, where a brick or hammer falls upon the head or back of the workman, or where he steps from a ladder, or even the shock of a sudden slip upon the ice and consequent fall, are cited as causes of traumatic neuroses. This proves that the manner or the situation of the trauma may vary greatly. The essential element in all cases appears to be the severe emotional or mental shock attendant upon the accident; the fright or the excitement being sometimes followed by a train of nervous symptoms when there has been no physical injury whatever. This mental shock may not be apparent at the time, for patients have been known to help the injured in an accident and go about for some time

without any evidence of disturbance, and then suddenly show all the symptoms of the emotional strain.

"In some cases at once after the injury, in others after an interval of weeks or months the nervous symptoms appear, differing widely in kind and degree, yet having so many features in common as to present a typical picture of disease. . . . The first result of the accident may be a severe shock, lasting several hours or even days; more frequently a short stage of unconsciousness or bewilderment occurs, to be followed by apparent recovery; very rarely a true mental derangement, in the form of hallucinatory confusion, ensues immediately. In the majority of the cases the injured patient presents no symptoms at once, is able to render aid to others, and to continue his duties if he is an employé. But after an interval the first evidences of nervousness appear, causing, perhaps, but little remark, but increasing. Sometimes the attention of both patient and physician is directed for weeks to some surgical injury, while the nervous symptoms, whose commencement has been overlooked, gradually develop.

"The first symptoms are usually entirely subjective; the patient has pain, either in the injured part, or, if there has been no local injury, in the back, especially in the lumbar region. This pain is increased by movement, and compels the patient to hold the parts stiff when he walks or moves. Another subjective symptom is an indefinite sensation of restlessness, excitement, or anxiety, which, as it increases, leads to a change of mental tone, and to a hypochondriacal or even melancholy mood, with great irritability of temper. This is usually accompanied by insomnia. The intelligence is not especially affected, though occasionally it is weakened. Vertigo or attacks of fainting, with or without convulsions, form one of the most frequent symptoms, and often a tremor, increased by excitement, is noticed. To these symptoms disturbances of motion and sensation are often added. The movements are hampered because they cause pain, but besides there is really a paresis, which rarely, however, amounts to paralysis. . . This may be in one or more limbs, but it is never limited to the muscles supplied by one nerve, and it has characteristics which distinguish it from those forms due to lesion of the spinal cord and brain. Abnormal spastic rigidity of the muscles is frequently found; differing markedly from the contracture of organic disease. The tendon reflexes are increased, and are never absent. There is rarely atrophy in the affected limb. The cranial nerves are never completely paralyzed. Speech is impeded rather than impaired. The sensory disturbances differ in their distribution from those due to any organic affection of the nerves or central organs, and they are usually accompanied by a limitation of the visual field. Œdema is the form of vaso-motor affection most frequently observed. The function of the bladder is rarely affected, but sexual power is usually impaired. An abnormal irritability of the cardiac action is a constant symptom of traumatic neurosis, but actual serious cardiac disease is not produced."

This concise picture of the disease is followed by a minute analysis of the different symptoms, and by a discussion of the theory of the affection. The author holds that the emotional shock is responsible for the symptoms, which would not appear did not a changed and diseased mind react abnormally to slight bodily disturbances. The fact that exactly similar symptoms can be produced by suggestion in persons who are

hypnotized, as has been shown by Charcot, is cited in proof of the psychical origin of the disease.

The persistency of the psychical alteration distinguishes the disease from hysteria, for the great variability of the symptoms characteristic of the latter is not observed. Patients rarely die of the affection, but they seldom recover wholly, according to the author's experience, for in a majority of his cases a condition of nervous irritability has remained after the severer symptoms have subsided. He has seen serious forms of mental derangement ensue. The recovery of some such patients, after they have secured substantial pecuniary compensation from corporations, is ascribed by him to the influence of the mental and emotional influences consequent upon successful litigation; but he has seen many cases in which this result has not been followed by recovery. He makes no new suggestions regarding treatment, which, according to his view of the affection, must be chiefly psychical. The forensic aspects of the subject are briefly discussed in the final chapter. M. A. S.

DIE VERBREITUNG DER TUBERKELBACILLEN AUSSERHALB DES KÖRPERS. Von DR. GEORG CORNET, Prakt. Arzt in Berlin und Reichenhall. Separat. Abdruck aus der *Zeitschrift für Hygiene*, 1888, v. 191–331.

THE DISSEMINATION OF TUBERCLE BACILLI OUTSIDE THE BODY. By GEORGE CORNET.

SINCE the publication in 1882 of the classical work of Koch upon the etiology of tuberculosis, the tubercle bacillus has come to be universally acknowledged as the cause of the disease. Any complete study of the manner in which the disease is communicated must therefore include the investigation of the occurrence of this specific microörganism outside the body. Such an investigation has been made by Cornet, and as the result of his elaborate research much valuable knowledge has been acquired, which should be of great use in the prophylaxis of the disease.

Because of the vast preponderance of pulmonary tuberculosis over disease due to the same cause in other parts of the body, Cornet is compelled to consider the air to be the common carrier of the infectious material, and has accordingly directed his experiments to the determination of the distribution of the bacillus in the air.

Following out the method of air analysis suggested by von Esmarch, he has collected the dust from the walls of rooms in which phthisical patients were living—avoiding carefully such portions of the wall as might be soiled by sputum from the patient—and has inoculated it into the peritoneal cavity of guinea-pigs. It would carry us too far to go into the details of his experiments, suffice it to say that they were conducted with every precaution against error in the results from any source. The dust examined in each case represented the settlings from 51,000 litres of air—the amount which a person would breathe in four days, supposing, with Vierordt, 500 c. c. to enter the lungs with each inspiration.

The results obtained by Cornet are in hopeful opposition to the idea

so prevalent that tubercle bacilli must of necessity be everywhere present in the air, for of 147 places examined, only 40 (27 per cent.) were shown to contain the bacilli, and of 392 animals inoculated, only 59 (15 per cent.) became tuberculous.

Since it has been proven that tubercle bacilli cannot multiply under ordinary conditions outside the body, we are forced to believe that all those found in the air must have come from some animal organism affected with tuberculosis. It is of the greatest importance to us to know how this infection of the air occurs. Long ago Nægeli proved that microörganisms are incapable of passing from liquid media into the air, and later investigators have shown that the air expired by phthisical patients is free from tubercle bacilli. Cornet, therefore, concludes that the sputum is the usual source of infection of the air; and that, so long as the sputum remains moist, no bacilli can leave it—in other words, that only dried sputum is dangerous. The results of the examination of dust from the air in the sleeping rooms of fifty-three tuberculous private patients furnished interesting corroboration of this theory, for in every one of the twenty cases in which bacilli were detected in the dust the patient admitted spitting upon the floor or into the handkerchief, proceedings, either of which would readily admit of the drying of the sputum. In twenty-eight cases, on the other hand, in which none of the animals inoculated became tuberculous the patients (with three exceptions) denied ever using anything but a spit-cup.

But if the tubercle bacilli enter the air in particles of dried sputum, should not city streets be a fertile source of the dissemination of the germ? A negative reply to this question is based upon the fact that of forty-one animals inoculated with material obtained from streets and public buildings (exclusive of hospitals, etc.) in Berlin, not one became tuberculous. Furthermore, an investigation of the proportion of phthisical persons among the street-cleaners of Berlin showed a smaller percentage of them to be affected with that disease than of any other class obliged to work much in dusty places.

The air of hospital wards, asylums, and prisons was also examined. A comparison of the results obtained in the medical and surgical wards is of considerable interest. Of 91 animals inoculated from the dust of 21 medical wards, 77 were affected with some infectious disease—in 15 cases with tuberculosis. On the other hand, of 8 animals inoculated from the dust of surgical wards, only 1 died, and that one not of tuberculosis. It is reasonable to suppose that to the careful asepsis employed in the Berlin surgical wards is owing their freedom from infectious germs, and Cornet concludes that very simple means may be sufficient to control the contamination of the air by tubercle bacilli.

Appreciating the difficulties attendant upon efforts to introduce any but simple and inexpensive measures of prophylaxis, Cornet wisely limits his suggestions to such as may be easily carried out by everyone. Of paramount importance is the habitual employment of some form of receptacle for the expectoration, in which it shall be prevented from drying by the presence of some liquid. For this purpose water is thought to answer as well as disinfectant solutions, as the latter do not penetrate the mucus. Such receptacles should be numerous so that one may always be at hand, and should be thoroughly cleansed at least once daily. Spitting upon the floor should be prohibited. The use of the handkerchief as a receptacle for sputum should be limited as much as

possible. The soiled garments of phthisical persons should be thoroughly boiled for an hour in the process of washing. Careful disinfection of the rooms in which tubercular persons have died, as well as of the beds and bedding, should be required. Frequent watering of streets in dry weather is of considerable importance. Finally, the patient should be made to understand that unless he take the necessary precautions he is liable to be a source of infection to himself as well as to all around him.

Cornet is inclined to renounce all belief in hereditary tendency to tuberculosis, believing that the more frequent occurrence of the disease in members of the same family is adequately explained by a consideration of the increased liability to infection. He furthermore suggests, that were there a marked hereditary predisposition the percentage of deaths from tuberculosis would be greatest in early and middle life, whereas in reality it increases regularly with advancing age.

The article is most carefully written and deserves the thoughtful consideration of everyone interested in the eradication of the disease which is accountable for about one-seventh of our mortality. J. S. E.

INEBRIETY: ITS ETIOLOGY, PATHOLOGY, TREATMENT, AND JURISPRUDENCE. By NORMAN KERR, M.D., F.L.S., etc. 8vo. pp. xxx., 415. London: H. K. Lewis. Philadelphia: P. Blakiston, Son & Co., 1888.

DR. KERR, who is the President of the British Society for the Study of Inebriety, and consulting physician to the Dalrymple Home for Inebriates, has written this work to impart useful knowledge as to "medicinal remedies, the selection of a suitable home, or some other detail of therapeutic treatment." The work is intended to meet the "innumerable inquiries which have been addressed to me as to the best course to be adopted in dealing with the inebriate."

The subject of inebriety, both from a social as well as from a medical standpoint, is a many-sided one. Problems are presented which have vexed the minds of moralists and lawmakers from time immemorial, and the medical profession has not escaped its share of labor in the endeavor to solve them. If we read the signs of the times aright, it may be expected to assume in the future more and more of the burden.

The book of Dr. Kerr will be read with interest by those who are seeking light, but we fear that it will not much enlighten us upon the intricate questions involved. These questions, however, are of much importance, and Dr. Kerr's work deserves perusal, as does every honest attempt of a like nature.

The profession, as well as the laity, may be divided into two classes:

1st. Those who regard inebriety as a *vice*, and only admit that it becomes a disease when long indulgence in the habit has undermined the physical organism and taken away the nervous and mental force necessary to resistance.

2d. Those who look upon the inebriate as the victim of a disease over which he, unaided, has little power, and for which he is in but small measure, if at all, responsible.

Dr. Kerr belongs to the second class.

Dr. Kerr's readers will, unless we have carelessly read his work, find it difficult to decide as to how much weight he gives to habit in the production of inebriety. Our inference is that, while he accords to it its due weight of influence in binding more firmly the fetters upon the inebriate, he does not regard periodic intoxication, or even habitual inebriety, as anything more than a symptom of an inherent weakness, either the result of direct heredity, an impaired nervous organism, or the one fatal weakness in an otherwise normal physical and mental constitution.

In defence of his thesis, the author proposes to examine the claims of inebriety to be classed as a disease, by the test of Sir Thomas Watson's definition of disease, viz., all deviations from healthy standard; but, however much one may or may not differ with Dr. Kerr, the feeling is forced upon us that he does not prove his case.

The problem, as we conceive it, is simply this: Given a condition characterized by habitual or periodic excessive use of intoxicants, with the well-known and direful results, is there a disease which produces an irresistible impulse thus to indulge, which disease exists *de novo*, and is not the result of prolonged habit? From this problem would, of course, be excluded all those forms of insanity, of which a departure more or less abrupt from former temperate habits is one of the complications.

We are willing to admit with Dr. Kerr that, in addition to these insane cases above referred to, there exists a certain number of other cases in whom there is such an impairment of the nervous system, either congenital, in some instances directly hereditary, or the result of ill health or overwork, or some other of the ills and accidents of life, as to destroy or weaken the normal restraining power, call it defective inhibition, or what he may, rendering its victims prone to excessive indulgence in narcotic intoxication and to habit diseases.

Admitting this much, we must protest against what seems to us an unnecessary and ill-directed anxiety to set up the disease inebriety, and include, with a few exceptions, all drunkards within the category. Dr. Kerr does not believe that all drunkards have the disease, but his exceptions, as we understand them, are few. He does include all cases in which there is a "departure from health," keeping Watson's definition in view, "in the form of some obscure condition of the nervous system which craves for the temporary relief afforded by some stimulant or narcotic."

Passing from the obscure and functional, he endeavors to apply the test of pathology to the claims of inebriety to be ranked as a disease. In doing this he makes the error, resulting apparently from his anxiety to prove his case, of confounding cause with effect.

The "typical series of pathological appearances" which he "almost always found," as detailed on page 8, are those of the recognized effects of alcohol upon the animal economy, but surely no one but an enthusiast would ask us to accept as proof of the existence of a disease, which impelled a man to take poison, the *post-mortem* evidences that he had taken poison.

In the matter of treatment we are more in accord with Dr. Kerr than upon any other. He believes in removing the alcohol or other narcotic at once. While this is not always wise, we think that in the majority of instances it can be done with as little disturbance as is produced by the

so-called tapering-down process. Tonics, good food, exercise, mental and physical occupation, moral support, comprise, in brief, what he suggests in the way of direct therapeutics.

The medico-legal status of the inebriate, especially in the line of responsibility, is attracting more and more attention, and we regret that Dr. Kerr takes the stand that he does, though, to do him justice, it is in accord with the general position which he has assumed upon the subject of inebriety. It is becoming too common to defend criminals upon the theory of irresponsibility by reason of inebriety.

Dr. Kerr would hold the inebriate to a limited responsibility, or excuse him wholly, like the lunatic, from consequences of his acts. If he were to stop here, while we could not follow, we would not so heartily condemn. But he goes beyond this and opens the door of irresponsibility so wide that there seems no limit to those who may enter, when he says of certain cases "they were the subjects of inebriety though they never committed an inebriate act."

Dr. Kerr's book is written for popular as well as professional reading. What encouragement he here gives to criminals. All they need do is to take a glass or two of whiskey, commit almost any crime, and demand excuse on account of hitherto unsuspected and undemonstrated inebriety, what Dr. Kerr calls a pre-paroxysmal pathological antecedent, whatever that may mean.

'Gainst such theories we can only exclaim with Shakespeare:

"This is an excellent foppery of the world that when we are sick in fortune (often the surfeit of our own behavior), we make guilty of our disasters the sun, the moon, and the stars; as if we were villains by necessity; fools by heavenly compulsion; knaves, thieves, and treachers by spherical predominance; drunkards, liars, and adulterers by enforced obedience of planetary influence, and all that we are evil in, by a divine thrusting on." E. N. B.

THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE RECTUM. By WILLIAM ALLINGHAM, Fellow of the Royal College of Surgeons of England, Senior Surgeon to St. Mark's Hospital, etc. EDITED AND REVISED WITH MUCH ADDITIONAL NEW MATTER AND NUMEROUS DIAGRAMS by HERBERT WM. ALLINGHAM, F.R.C.S., Surgeon to the Great Northern Hospital, Demonstrator of Anatomy at St. George's Hospital, etc. 8vo., pp. xvi., 366. London: J. & A. Churchill, 1888.

To say that a man has written the best book upon any given subject is high praise, yet we believe it can be honestly said of this work which now appeals to the judgment of the professional public in a fifth edition. Its author has transferred to his son the duty of revising and editing the present edition, and the result is seen in a large volume containing many valuable additions. Mr. Herbert Allingham has furnished some new diagrams which help to make plain certain of the pathological conditions involved, and some of the operative procedures needed for

their remedying. Other distinct additions by the same hand consist of chapters on "Inguinal and Lumbar Colotomy," "Excision of the Rectum," and "Incontinence of Feces."

Mr. H. Allingham is emphatic in his preference for inguinal over lumbar colotomy, as he thinks it is easier to find the large gut in the former locality, and to obtain a good spur to prevent the passage of feces into the rectum, while the artificial anus is more easily attended to and kept clean when placed in the inguinal region. He points to the fact that the peritoneum is often injured during the lumbar operation, either consciously or unconsciously, and that when this is the case one of the prime arguments for colotomy in the loin is disposed of. Then, opening the peritoneum has been robbed of many of its terrors by the steady progress of modern surgery, so that, unless there is a call for immediate evacuation of the bowels without waiting for the peritoneum to become united to the abdominal wall, Mr. Allingham, with an experience of sixty-four lumbar colotomies done by himself, gives a decided preference to the inguinal operation.

We have casually mentioned one of the chief factors which give value to this book, namely, the vast experience to which its authors can appeal. Certainly the man who has done sixty-four lumbar colotomies knows a good deal about the advantages and disadvantages of that operation, and his opinion properly should have much weight. Indeed, no surgeon liable to be called upon to perform either of these operations can afford to neglect the practical hints with which these chapters abound.

In the chapter upon incontinence of feces following division of the sphincter, Mr. Allingham records the very favorable experience he and his father have had in the use of the actual cautery, Paquelin's knife, in securing contraction of the anus and improving the tone of the sphincter muscles.

While acknowledging the caution with which he, in common with most English and American surgeons, for a long time regarded excision of the rectum, the editor says he has himself removed the whole circumference of the rectum in forty-two cases, while he has removed segments of the bowel in very many patients. His method of operating is to obtain room and good drainage by a deep posterior incision as recommended by Verneuil, and to begin the excision of the rectum proper between the external and internal sphincters, leaving the former attached to the skin. In view of the impossibility of keeping the bowels long confined, and the inevitable flooding of the wound by their contents, our author places all his reliance upon drainage and thorough cleanliness, rather than upon any antiseptic specific. He narrates ten cases from his own experience, and exhibits in the details that practical common sense, founded upon extensive acquaintance with rectal disease, which the profession has learned to connect with the senior surgeon of St. Mark's Hospital, and which seems to be handed down unimpaired to the son.

What we said at the beginning we would repeat at the close of this notice. The book has long been the best one upon rectal surgery, and this edition is a decided improvement upon those which have preceded it.

S. A.

PROGRESS

OF

MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF

FRANCIS H. WILLIAMS, M.D.,

ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

SULPHONAL.

DR. WILLIAM H. FLINT reports thirty-three cases in which sulphonal has been employed and in which the observations have evidently been made with unusual care.

The drug was given at bedtime, in powder inclosed in capsules and the patients were not informed of the nature of the drug or of its expected action. The average length of time at which sleep ensued after the administration of the sulphonal was about an hour. The average duration of sleep was a little over six hours, and success attended its use in about eighty-two per cent. of all the trials. The cases were unselected and many were unsuitable for experiment with a pure hypnotic.

While the cases reported are too few to justify any generalizations regarding the exact indications and effects of sulphonal, they yet offer some interesting corroborative evidence regarding its great hypnotic value, already established by earlier observations. The general conclusion which may be drawn from the observations is, that sulphonal, even in single doses of twenty to thirty grains, is a safe, and, in the main, reliable hypnotic, free from unpleasant concomitant effects, and usually from all undesirable sequelæ.

The single objectionable after-effect observed was moderate somnolence on the morning following the administration of the remedy. In none of the cases has there been the slightest derangement of appetite or digestion, nor have the circulation and respiration been appreciably affected at the time of waking. The cutaneous and renal secretions were neither increased nor diminished; nausea, vomiting, and constipation have not followed the use of the drug. Several of the cases seem to show that an increase of the original dose is often not required, and that after a certain time, natural sleep being restored, the sulphonal may be discontinued. The doctrines that sulphonal is of exceptional value in insomnia occasioned by debility, neurasthenia, and mental perturbation, and that it has no appreciable anodyne properties,

receive support from the history of several of these cases. The effect of sulphonal was particularly fortunate in the cases of those patients who had previously been addicted to the use of opium and of other hypnotic drugs, or were suffering from insomnia due to the withdrawal of these remedies.—*New York Medical Journal*, Dec. 15, 1888.

The Superintendent of the Richmond Asylum, Dublin District, MR. CONOLLY NORMAN, has used sulphonal in about thirty cases, of which he reports twenty-two. In only two persons were any bad results noticed; these were especially unfavorable cases and where other sedatives had failed. No gastric or intestinal trouble was observed. The drug appeared to lessen the tendency to self-abuse and erotic excitement. In some recurrent cases it appeared to shorten the attack.

In comparing sulphonal with other medicines having similar effects, it is needless to refer to the products of opium or to chloral. Of the more modern drugs, paraldehyde is, perhaps, the most used. Its great disadvantage is that it requires constant increase in the dose. This does not seem to apply to sulphonal. Paraldehyde long continued is also stated by Fröhner to cause destructive changes in the blood corpuscles, while Kraft-Ebing points out that it occasionally produces symptoms resembling alcoholism. Urethan, of which pretty extensive trial was made, is uncertain and of no great strength.

Amylhydrate is uncertain and dangerous, as Schlös's cases prove (*Jahrbuch der Psych.*, viii. 1 and 2). Methylal is liable to the same reproaches. Amylhydrate, methylal, and hypnone are so abominable in taste and smell, that it is impossible to get patients to swallow them, and they all upset the stomach.

The advantages of sulphonal are: that it has no odor, is almost tasteless, and produces no gastric derangement and no troublesome head symptoms. It does not affect the appetite and the sleep is relatively "natural." Its disadvantages are its bulk and insolubility; its action is slow. Other observers have noticed a slight degree of giddiness and unsteadiness, with a sense of weariness on the following morning. Vomiting and slight diarrhœa soon passed off, though the drug was continued.

Probably unpleasant and even injurious results will be found to occur after the injudicious or continued use of sulphonal.— *Dublin Journal of Medical Science*, Jan. 1889.

POISONING BY SULPHONAL.

In the *Deutsche Medizinal Zeitung* of Nov. 26th, DR. BORNEMANN gives an account of the case of a physician, fifty-three years old, a victim to the morphine habit, to whom sulphonal was given. On one occasion sixty grains were given shortly after nine o'clock in the evening and thirty grains more an hour after midnight. Sleep did not follow promptly, but the patient shortly showed symptoms of muscular incoördination of a decided character. It took six days for the ataxia to subside entirely, and during a portion of that time there was great mental depression.—*New York Medical Journal*, Dec. 29, 1888.

JUNIPER BERRIES AS A DIURETIC.

The inspissated recent juice of common juniper berries is highly praised by DR. GOLDSCHMID, and it is recommended by PROF. VOGEL, of Dorpat,

as the best diuretic for children. While being most effective, the remedy is exceedingly mild and altogether free from any unpleasant accessory effect. Two or three teaspoonfuls should be given daily, diluted with water and sweetened with sugar. Young patients take it very readily.—*British Medical Journal*, Jan. 12, 1889.

Cocoanut as a Vermifuge.

Professor Paresi, of Athens, when he was in Abyssinia happened to discover that ordinary cocoanut possesses vermifuge qualities in a high degree. He took, one day, a quantity of the juice and pulp and shortly afterward felt some amount of gastric disturbance, which, however, passed off in a few hours. Subsequently he had diarrhœa and was surprised to find in the motion a complete tænia, head and all, quite dead.

After returning to Athens, Professor Paresi made a number of observations which were most satisfactory, the tænia being always passed and quite dead. In only one case was the head wanting. He orders the milk and the pulp of one cocoanut to be taken early in the morning fasting, no purgative or confinement to the house being required.—*Lancet*, August, 1888.

A correspondent of the *Times*, of India, writes that the cocoanut has been used as a vermifuge in India for probably forty generations by the beef-eaters of the country, and is so well known there as a means of expelling the flat worm, that he cannot conceive how information of the fact has not reached England before. When properly prepared and intelligently administered, so says the writer, the cocoanut is equally efficacious with male fern oil, kousso, pomegranate root, or turpentine, while it is as pleasant to the palate as they are offensive.—*Pharmaceutical Journal and Transactions*, Nov. 3, 1888.

Therapeutic Agents in Shock.

Professor Cheever published in the *Boston Medical and Surgical Journal*, vol. cxix. p. 293, for 1888, an excellent paper on shock, which, although most terse and clear, is too long to be reproduced here.

Among the ways of preventing it, he insists that the mental shock should be calmed by a cheerful word and personal presence. The anæsthesia should be of short duration; it should not be begun until everything is ready, and it should be discontinued early, keeping in mind the fact that consciousness returns tardily. The operation and the dressing should occupy no more time than is necessary. Throughout all care should be taken that the patient is not chilled. To promote the reaction after the operation, persistent and carefully applied dry heat should be employed, with especial care to avoid accidental burns. Liquid nourishment, with a stimulant and a little laudanum by enema; aromatic spirits of ammonia, black coffee, and brandy by the mouth, quiet, and a horizontal or more than horizontal position and sleep are also serviceable.

In commenting upon Professor Cheever's article, *The Therapeutic Gazette* of Dec. 13, 1888, suggests that the physiology of this condition is failure of the circulation, as shown by the great loss in force of the pulse, diminished arterial pressure, and extraordinary fall of the bodily temperature. Further, that vaso-motor paralysis is the chief cause of heart failure and of the above con-

ditions. Upon this theory the two chief indications for the treatment of shock are to overcome the vaso-motor paralysis and to maintain the bodily heat. Stimulation of the heart is, of course, useful, but such stimulation will amount to very little if there be no reawakening of the resistance to the heart's action; and if such resistance be aroused in any individual case, it is almost certain that it in turn will reëxcite the heart.

As regards nourishment in severe shock, when the life-force is at such a low ebb that respiration and circulation can scarcely be maintained, digestion must be in great part, if not altogether, arrested. Certain substances which are stimulants rather than foods, as beef essence, highly seasoned and given hot might very well achieve good, in an injured person, at a time when even as simple a food as milk would not be helpful, but be actually injurious.

The ordinary methods of raising the bodily temperature by bottles of hot water, hot bricks, etc., placed in the bed are feeble, compared with a hot-water bath. In hospital cases the very best treatment of shock following an injury may even be to put the patient for a time in a bath of water whose temperature is 110° F. Another method of keeping up the bodily temperature, which is free from the objections of hot water and is almost as powerful as that procedure, is the use of the hot-water bed. If an ordinary water-bed be three-fourths filled with water whose temperature is 130° to 140° and blankets spread over it and the patient laid thereon, the body will sink down so that it will be almost surrounded by the heated mass. If the bed be well covered with blankets, many hours will be required for the cooling of the water.

The choice of anæsthetics is a matter of great importance. Ether is as truly a stimulant to the circulation as is alcohol, and merely for the purpose of stimulating a patient in shock it is more rational to give ether than to give alcohol, because the action of the ether is quick and more controllable than is the action of alcohol; on the other hand, precisely as alcohol in excess becomes depressant to the heart and circulation, so also does ether; chloroform, however, is, under all circumstances, a depressant.

As regards the use of alcohol in the cardiac accidents of anæsthesia, it should not be forgotten that ether and alcohol have almost the same action, save only that ether is absorbent and eliminated with greater rapidity. When the circulation fails during anæsthesia, it is just as sensible to exhibit more ether as to exhibit alcohol.

In atropine we have a drug which will stimulate the vaso-motor system; the dose of its salts is small and their diffusibility is great when injected hypodermatically. Ergot is also a powerful vaso-motor stimulant; its action, when given by the mouth, is too slow for the necessities of such cases, and its hypodermatic injection is prone to cause severe local irritation. Digitalis is strongly indicated in shock, not only on account of its power over the heart, but because it appears to be a powerful stimulant to the vaso-motor system. In the form of the tincture it may be given hypodermatically with little danger of producing severe local irritation, and with the hope that it may be sufficiently quick in its influence to be of some good; but its action is exceedingly slow compared with the almost instantaneous activity of atropine. Ammonia administered by the mouth may sometimes be of service; injected into a vein it would have an immediate but temporary effect.

[Atropine might also be used to avoid shock by giving it at the beginning

of anæsthesia, thereby dulling the vagus, and thus to some extent shielding the heart from shock transmitted through the nerve, as well as to produce the good effect of the atropine upon the vaso-motor system. Some preparation of strophanthus might be used instead of the tincture of digitalis, as it would probably be more prompt in its action.—ED.]

CREOLIN.

Among some of the drawbacks of this new antiseptic are that its mixtures with water are not transparent, and as a consequence the surgeon is not able to find readily the desired instrument among a number covered by the solution. It also makes everything slippery, as if covered with soap, and less easy to hold firmly.—*Therapeutische Monatshefte*, Jan. 1889.

TINCTURE OF STROPHANTHUS.

DR. HERMANN HAAS has made a careful study of the action of tincture of strophanthus upon the visible, tactile, and graphic cardiac impulse. Fraser's tincture was used in doses of ten to thirty, or even up to fifty drops. No dangerous symptoms or cumulative action appeared, the appetite improved under its administration, which is in contrast to digitalis in many cases.

With other observers, he found the pulse slowed, and the patients improved under its use. As a diuretic it was successful in cases in which digitalis had been without avail. In order to observe the effect of strophanthus on the cardiac impulse only, three patients were used who showed a cardiac impulse which could be recognized by the eye and hand, when the patient was lying down; care was taken to observe the effect of a sitting posture or standing upon the cardiac impulse; curves of both the cardiac impulse and the respiration were taken at the same time.

Before giving any dose it was necessary to study carefully the cardiograms characteristic of that individual. After this had been done, thirty to seventy drops of tincture of strophanthus were given, distributed over one or two days; curves were then taken for several successive days. After the effect of the new drug had passed off, it was repeated, and after a sufficient number of observations had been taken, and an interval allowed, digitalis was given, and the cardiograms of the two drugs were compared.

The results of the observations in all of the above (more than twenty cases) were very similar.

It seems that five hours after the administration of tincture of strophanthus the character of the apex beat changes, it becomes ten to twenty beats slower per minute; the heart beat is quieter, and the impulse is weaker.

The softening of the blow in the intercostal spaces is noticeable both to eye and finger, as well as to the open hand applied to the chest.

In all cases in which there was not considerable hypertrophy of the heart, its lessened activity rapidly went so far that the point of cardiac pulsation was found only with difficulty, or not at all. This action was observed in all cases for a longer or shorter time, according to the dose or the amount of hypertrophy.

Dr. Haas considers the action of strophanthus to be one which diminishes

the activity of the heart's muscle, as well as of the muscular layer of the bloodvessels; an action, in other words, not similar to that of digitalis, but directly the opposite. He thinks it doubtful, in the light of his observations, if strophanthus increases the blood-pressure, notwithstanding Fraser's observations showing that the heart's muscle is stimulated to make stronger contractions under the influence of this drug.—*Deutsches Archiv für klinische Medicin*, vol. xliii. p. 353.

The Therapeutical Employment of Iodol in Internal Diseases.

Dante Cervesato (*Lo Sperimentale*, Sept. 1888, quoted by *Wien. med. Presse*, 1888, No. 49) gave iodol internally, in doses of seven to twenty grains a day, to children with different evidences of scrofulosis. It proved itself valuable chiefly in the torpid forms, as in chronic swellings, and in glands not yet suppurating. Its action was also favorable, though to a less extent, in scrofulous affections of the mucous membranes, especially in rhinitis and otitis. In scrofulous disorders of the skin it was of little service. In addition to the internal administration of the drug, insufflations of it or inunctions with an ointment were employed. In diseases of the respiratory apparatus iodol was given in doses of fifteen to forty-five grains a day. Inhalations were also prescribed, the drug being suspended in glycerine, alcohol, and water. In this way excellent results were obtained in different forms of laryngitis and bronchitis. In syphilitic ulceration of the pharynx, the result was also excellent, the treatment being aided by local applications of iodol.

MEDICINE.

UNDER THE CHARGE OF

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The Therapeutics of Typhoid Fever.

A. Vogl (*Deutsch. med. Wochenschr.*, 1888, Nos. 48, 49) dismisses in a few words the use of the chemical antipyretics as being productive of harm, and discusses at length the employment of cold baths. After quoting very extensively from the literature of the subject, he concludes that though the antipyretic effect of a single bath is not so striking as that of a full dose of antipyrin, yet it is by no means inconsiderable, if properly applied, and the right time for its administration is chosen. It is, however, from the frequently repeated employment of baths, in the manner insisted on by Brand, that the

best results are obtained. As often as the temperature reaches 39° C., baths of 14° R., lasting one-quarter of an hour, should be given every two hours, day and night. It is not a decided fall of temperature which is to be desired, but a diminution of the *average* daily temperature. The author does not believe that any danger attends the employment of the cold bath system, since but very few unfavorable results have been reported out of the many thousand baths which have been administered to fever patients in France and Germany. The attendants should not be allowed to remove the patient from the bath before the fifteen minutes have expired, for any less important symptoms than blueness of the face, marked pallor, or decided dyspnœa. However, as with the first dose of any antipyretic drug, the first bath must be given with some degree of caution. He claims that the mortality is decidedly less under the cold bath treatment than when other methods are applied, or a purely expectant plan is pursued. The importance cannot be sufficiently urged of commencing the treatment as early in the case as possible; even before the diagnosis is positively established. Cold baths not only diminish the temperature, but favorably influence the arterial tone, the activity of the heart, digestion, respiration, diuresis, and the functions of the skin.

The Treatment of Typhoid Fever with Acetanilid.

In a somewhat lengthy article in the *Prager medicinische Wochenschrift*, Nos. 34, 35, 36, and 37, 1888, Haas reports the results of the administration of acetanilid to 104 cases of typhoid fever; giving statistics of the symptoms present and the effects of the drug observed. He concludes that acetanilid, neither in large nor in small doses, exerts any specific or abortive action on the disease, but that it is an excellent remedy for the treatment of certain symptoms. Its action on the high temperature and on the nervous symptoms accompanying it is very satisfactory and certain. For this purpose more than one gramme a day is seldom needed. It does not disturb digestion, has a favorable influence on the general nutrition, and increases the appetite. Cyanosis and oligocythæmia are symptoms attending only the imprudent use of large doses. Collapse and rigors will be avoided, if no effort be made to produce very marked reduction of temperature, and doses as small as will answer the purpose be employed. When, however, there is dangerous hyperpyrexia, two grammes a day may be given, and will, without fail, reduce the body heat. Such doses must be given with caution, or collapse and rigors may ensue.

The treatment with acetanilid should be commenced as early as possible in the disease, and one gramme given within ten hours in divided doses, since to administer it at night is useless. The greater the difference between the morning and evening temperature, the more should the amount be diminished. From the day on which the evening temperature reaches normal under the influence of the drug, the daily dose should be reduced to one-half gramme. Finally, the evening temperature is kept at normal by this amount, and in advanced cases by even three-tenths of a gramme. Chilliness followed by sweating indicates the need of caution in the size of the dose. The author believes that under this method the patients assimilate food better, and may be fed more freely, and that they lose less weight and become more able to

resist the injurious action of the fever. He considers this method of treatment fully equal to that with cold baths, while it is far less burdensome both to the patient and to the attendants. The only contraindications are the presence of such conditions as intestinal hemorrhage, perforation, and severe pulmonary complications, which demand a special and symptomatic treatment. In cardiac weakness and collapse the use of acetanilid is in order, combined with suitable stimulating methods.

Treatment of Typhoid Fever with Cold Baths.

Juhel-Rénoy (*L' Union Méd.*, January 5, 1889, 32) reports his experience with the cold water treatment of typhoid fever, after the method of Brand, having now employed it in many cases. He concludes that the cold bath not only operates against the elevation of temperature, but against the force of the disease; that the arguments against the danger from it ought to be abandoned; that the mortality is much reduced by this form of treatment, and that the application of the method should be commenced as soon as possible after the disease appears.

Typhoid Fever Complicated by Anthrax.

J. Karlinski (*Berlin. klin. Wochenschr.*, 1888, Nos. 43, 44) reports in detail an interesting case of typhoid fever complicated by anthrax, and describes the bacteriological experiments which he instituted. The patient exhibited evident symptoms of severe typhoid fever, and the disease ran a somewhat atypical course until the twenty-first day. At this date there was a rise in temperature, and on the day following the author discovered in the liquid stools some small masses tinged with blood, which contained, besides other constituents, numerous bacilli of about nine micromillimetres in length. Cultures of these and experiments on animals with them convinced him that he had to do with the bacillus of anthrax. In the meantime the patient grew worse and died. The autopsy revealed the characteristic changes of typhoid fever in the lower part of the intestine, while in the stomach, duodenum, and upper part of the jejunum, there were swollen, infiltrated, deeply red regions, forming bean-like elevations. Microscopic examination of these and of the mesenteric glands in the vicinity revealed great numbers of anthrax bacilli. In the lower part of the ileum and cæcum, on the other hand, as well as in the mesenteric glands of that region, no bacilli were to be found, but there were discovered some of the characteristic groups of the typhoid bacilli.

The case was, therefore, one of mixed infection. As there had been no symptoms of anything but typhoid fever until the twenty-first day, the author was at a loss to account for the source of the infection with anthrax. He discovered, however, that a few days before the change in the symptoms had been noticed the sister of the patient had brought him some milk, and that the cow from which this had been derived had since died, having had a suppurating sore upon its udder. It would seem clear that this had been a local manifestation of anthrax, and that spores had in all probability entered the milk.

Prophylaxis in Scarlatina.

Bæumler (*Münch. med. Wochenschr.*, 1888, No. 42, 703) gives some statistics showing the high rate of mortality from scarlet fever, and reviews the complications which may occur. Prominent among these is albuminuria, to which he calls especial attention. A careful distinction is to be drawn between the albuminuria frequently occurring early in the disease, accompanying high fever, and lasting but a few days, and that developing at the third or fourth week, which is often very persistent and may be attended by all the evidences of a severe nephritis, though the amount of albumin be small in amount. Regarding the prophylaxis against scarlatina, the two questions arise—whether this is possible, and whether it is necessary. Though this disease is so much more dangerous than measles, the disposition to get it is very much less. Only in a few of the early years of childhood is there a really considerable tendency to catch it from others, and this rapidly grows less with advancing age. An important point, therefore, is that the longer the child can be protected from the disease, the greater is the likelihood that it will escape it entirely.

As is well known, the contagium of scarlatina is always derived from some other case; it possesses a very great vitality; it is active from the earliest beginning of the disease until far into convalescence; and it usually requires a very short period for its incubation. The author reports cases to show that the breath may carry the contagion before the appearance of any eruption, though the chief danger is during the stage of desquamation. It is therefore absolutely necessary to isolate patients as soon as possible. The clothes can be disinfected, but it is virtually impossible to disinfect the epithelial covering. A fixed time during which the patient must be isolated cannot, therefore, be named, but the child must remain away from others until the shedding of the epithelium, especially that of the palms and soles, is entirely completed. The author has known this to require sixty-three days from the onset of the disease, and a still larger number has been reported by others. Desquamation can perhaps be hastened by bathing with warm soap-water, and the dissemination of scales hindered by inunctions. It is very important that the scalp be treated in this way, as the scales of this part are fine and are shed early. A convalescent room is of especial value for those patients who feel well, but who cannot with safety mingle with others.

Children who have come in contact with cases of scarlatina should remain under observation ten or twelve days before again joining other children. Those in attendance upon the patients should wear some outside garment in the sick-room, and change their clothes and wash their hands in carbolic water on leaving it. The sick-room should be thoroughly aired every day, with proper precautions that the patient take no cold. All the linen used about the patient is, while still in the sick room, to be put in a three per cent. carbolic acid solution, and then boiled with a strong soap. Shoes are to be disinfected with the carbolic water, and clothes treated with steam. The walls of the sick-room, if painted or papered, are to be rubbed down with bread after the patient has been removed, the iron and wooden furniture and the floors washed with a carbolic solution, and the curtains, mattresses, etc., subjected to steam. Special vehicles should be employed to bring children

with scarlatina to hospitals. Finally, precaution should be observed against the carrying of the disease by third persons, domestic animals, books, letters, milk, etc.

The Period of Infection in Scarlet Fever.

In connection with the preceding article, a communication of A. Whitlegge (*Lancet*, Jan. 5, 1889) is of interest. It seems to him probable that a lull in the infectiousness of the disease may occur about the end of the first week, at the time when the acute symptoms are subsiding and desquamation has hardly commenced. To determine this point, he analyzed 1700 cases, of which he had exact particulars, and found, in fact, that the infectiousness suddenly decreased at about the sixth day, and increased again about the twelfth day, reaching its maximum by the sixteenth day.

The Causes of Death among Gouty Men.

E. Casey (*Brit. Med. Journ.*, Jan. 19, 1889, 116) has made an analytical study of the cause of death of 2852 men, taken from the tables of the Collective Investigation Committee; 529 of these were gouty, 1870 free from the disease, and of the remainder no information was given upon this point. The presence or absence of intemperance was also studied. The results show that Bright's disease is closely related to the gouty diathesis, and is three times as frequent a cause of death among the gouty as among the not gouty. The influence of gout in the production of heart disease is marked at the middle period of life, but not in later years. Probably the gouty cases of heart disease run their course before old age is reached. Apoplexy shows the same tendency as Bright's disease and heart disease, but in a less degree. There appears to be no relation between gout and cirrhosis, and the same is true of malignant disease and of bronchitis. Pneumonia and allied diseases appear to be less common among the gouty, but more fatal among the intemperate. Phthisis is shown to be a considerably less common cause of death among subjects of gout. Either the gouty habit tends to prevent the development of phthisis, or conversely; or the causes of the two affections are in some degree antagonistic and mutually incompatible. Finally, the gouty habit offers no obstacle to the attainment of old age in the case of temperate men.

Syphilitic Disease of the Central Nervous System resembling Tabes.

H. Oppenheim (*Berl. klin. Wochenschr.*, 1888, No. 53, 1061) has, in the course of years, reached the conviction that syphilitic infection plays a not unimportant rôle in the production of tabes. In this case the syphilitic infection must produce two sorts of virus, one of which gives rise to the ordinary specific affections, the other to the simple degenerative processes of definite systems of fibres in the spinal cord. Not seldom, too, there occur cases in which it is difficult to determine whether tabes is present, or a genuine syphilitic disease of the central nervous system, since there appear to be no symptoms on which a positive differential diagnosis can be based. The author

relates a case which began with the evidences of cerebral syphilis, but later developed those of tabes.

Another case is reported in detail in which a genuine syphilitic affection of the cord was for years mistaken for true tabes. The patient, a woman of thirty-one years, who had certainly had syphilis, exhibited absent patellar reflexes, lancinating pains, disturbances of sensibility and of the function of the bladder, Romberg's symptom, ocular paralysis, immobility of the pupils and various bulbar symptoms characteristic of tabes. Treatment with mercurial inunction benefited the patient for a time, but later seemed to be useless, and the diagnosis of tabes was made. Later, the patellar reflex became exaggerated and there was ankle-clonus, so that the diagnosis of tabes was abandoned. The patient died of carcinoma of the uterus, and the autopsy revealed "pachymeningitis interna chronica et arachnitis gummosa," which surrounded the nerve roots, and sent processes into them and into the substance of the cord. The columns of Burdach were almost entirely free from disease, while the posterior nerve roots were atrophied from the pressure and infiltration of the surrounding newly formed tissue. The author describes in detail the microscopical changes throughout the cord and medulla, and discusses their relation to the symptoms observed during life. He claims that a case has not hitherto been reported in which a diffuse spinal affection produced such a complete exhibition of the symptoms of tabes dorsalis. He concludes, finally, that since a syphilitic spinal affection can produce such evidences of tabes, treatment with mercury should be undertaken in every case with such symptoms and in which there is a distinct specific history, and if the results are good, it would seem probable that we have had to do with a syphilitic pseudo-tabes. It is to be borne in mind that pure tabes is often made worse by the inunction cure.

The Localization of Tabes Dorsalis.

Jendrassik (*Deutsch. Arch. f. klin. Med.*, 1888, B. 43, 543) discusses at length and with great care the various opinions which have been held regarding the cause of and the lesions of locomotor ataxia, reports two typical cases, the cords and brains of which he examined with care, brings forward numerous arguments in support of his belief in the cerebral origin of the disease, and concludes that his cases prove the existence of certain peculiar alterations in certain portions of the cerebral cortex; alike in histological character, but different in seat from those found in dementia paralytica. Further, that the recognition of these changes, combined with the deductions which must be drawn from the clinical symptoms of tabes, render it extremely probable that the greater part of tabetic symptoms are due to cortical disease, and that tabes, therefore, is not primarily an affection of the spinal cord but of the brain. The sclerosis of the posterior columns is to be considered as a degeneration secondary to the cerebral changes.

Butylchloral in Trigeminal Neuralgia.

Liebreich (*Ther. Monatsh.*, 1888, No. 11) has used butylchloral for facial pain due to rheumatism, injuries, inflammation of the dental pulp, etc. One-third gramme administered internally has the power of producing anæsthesia

in the region supplied by the trigeminal nerve, yet the freedom from pain does not last long, and a large dose acts as a hypnotic. As the medicine has a disagreeable taste, the author prescribes it in the following formula:

Butylchloral	2 to 5 parts.
Spir. vin. rectif.	10 "
Glycerini	20 "
Aq. destil.	120 parts.—M.

Sig.—Dose a teaspoonful.

Erythromelalgia.

J. E. Morgan (*Lancet*, Jan. 5, 1889, 10) describes five cases of erythromelalgia, under which name Mitchell designated a rare vaso-motor affection of the extremities, characterized by redness and pain. One of these patients was a man who had been obliged to stand for hours. After recovering from a severe and obstinate attack of gonorrhœa, he found the soles of his feet, especially the inner surface, very painful on walking; and if the effort to walk was persisted in, the feet would swell and assume a bluish-red color. He was unable to ride upon horseback, as the pressure of the stirrups gave rise to acute paroxysms of pain. As the disease grew worse he could neither stand nor walk with comfort, and used to relieve himself by crawling on the ground. There was no impairment of sensation or motion, no atrophy, no altered electrical conditions, no affection of the reflexes. On suspending the legs over the edge of the bed the feet almost immediately grew swollen, and later dusky-red and painful. On returning to bed these symptoms soon passed off. There was, however, sometimes pain in the feet at night, produced by the warmth of the bedclothes. Various local and general remedies had been tried in vain, and some seemed to aggravate the symptoms, and as a last resort subcutaneous injections of morphia and atropia were given directly into the sole of the foot on the inner side. Improvement commenced at once, and on leaving the hospital, at the end of three months, the patient was able to walk with comparative comfort.

A second case is described, with symptoms much resembling those of the first, except that the disease later extended up the leg as far as the knee, the knee-jerk disappeared, and there was pain in the right arm and hand. Only a degree of relief was given by the treatment in this case.

In a third case the affection was confined to one foot.

A fourth patient had for twenty-three years suffered from pain in the sole of one foot. Warmth and exercise aggravated this and induced swelling and redness. In spite of all treatment the affection had always remained intractable. Whenever her health deteriorated the condition of the foot grew worse.

In still another patient the symptoms already described were confined almost entirely to one hand.

The author then discusses the symptoms, agreeing with Mitchell that the disease is a very intractable one. It can scarcely be considered a neuralgia, since the paroxysms of the latter affection are usually produced by cold and wet, and certainly not invariably by warm weather and warm clothing, as in the cases described. Then, too, the congestion which may occur in neuralgia is of an active type, accompanied by heat and a rose-red blush. In erythro-

melalgia, on the other hand, the congestion is rather of a passive character; often there is no increase of temperature, and the parts affected look rather livid than actually red. If the disorder is to be considered a neuritis, it is evidently of a form in which only certain parts of the nerve are involved, since even after it has lasted for years there develops no paralysis or diminution of muscular power. From the fact that syphilis, rheumatism, gonorrhœa, gout, or some form of fever had previously occurred in many of the cases of erythromelalgia which have been reported, the author thinks we are justified in attributing the paroxysms of pain to a perineuritis dependent on a cachectic taint, while the vaso-motor phenomena are due to a reflex irritation of the vaso-motor centres in the cord, starting from the affected nerves.

Rheumatic Pneumonia.

R. Hirsch (*Berlin. klin. Wochenschr.*, 1888, No. 52, 1048) says that the proportion of cases of rheumatism in which pneumonia occurs as a complication is usually estimated at far too low a figure; the involvement of the lungs being often present but overlooked. Just as the disease may rapidly leave one joint and pass to another, so the rheumatic affection of the lungs may scarcely persist long enough to produce symptoms which attract attention to that region. There may be, perhaps, only a little temporary engorgement with blood. The author gives the details of a case in which there were at first the symptoms and physical signs of beginning pneumonia, which had entirely disappeared by the next day, but were supplanted by the evidences of rheumatic affection of various joints. He believes that this was an example, not of a mixed infection, but of the first symptoms of rheumatism exhibiting themselves in the lungs. That this may in fact be the case is rendered all the more probable when the connection between pneumonia on the one hand, and malaria, erysipelas, and typhoid fever on the other, is taken into account. It is well known, also, that the microörganism of pneumonia belongs by no means to a single species. The existence, too, of pneumonia lasting but a day or so has already been maintained by other writers, notably Leube, Weil, and Jürgensen.

Pulmonary Tuberculosis cured by Facial Erysipelas.

Waibel (*Münch. med. Wochenschr.*, No. 48, 1888, 841) relates the case of a patient with a very pronounced family history of tuberculosis, who had exhibited for about two months distinct evidences of beginning phthisis pulmonum. There had been fever, sweats, expectoration which was sometimes bloody, emaciation, dyspnœa, and progressive weakness. Physical examination revealed some depression and diminished expansion of the upper part of the right side, decided dulness on percussion, increased vocal resonance, and somewhat bronchial respiration, with a few râles. The left lung appeared to be normal. Examination of the sputum for bacilli was omitted, as the diagnosis was considered certain. During five weeks of observation the physical signs grew worse, the left side began to be involved, the amount of expectoration increased, and there was fever in the evenings. At this period the patient developed a severe attack of facial erysipelas, spreading over the whole head, and accompanied by rapid pulse, high fever, delirium, and great prostration,

so that a fatal termination seemed most probable. This condition lasted a week, or longer, and after recovery from the erysipelas there was a surprising change in the pulmonary symptoms. Fever and insomnia permanently disappeared, cough was but seldom heard, and a prodigious appetite developed. The sense of weakness persisted for some time, but at the end of four weeks the patient was able to walk to his home, situated at some distance, and soon could undertake light work. In three months he was perfectly strong, and able to undertake severe outdoor labor. Nearly a year after the first observation the author again examined his quondam patient, now a healthy and healthy-looking man, and found scarcely a trace of the former pulmonary lesions.

In discussing the case, the author can come to but one conclusion; namely, that the disease was certainly phthisis, and that the attack of erysipelas cured it; probably, he believes, because the continued high temperature was unsuited to the tubercle bacilli.

The Treatment of Round Ulcer of the Stomach.

P. Cornils (*Deut. med. Wochenschr.*, 37, 755, 1888) gives an account of the course of gastric ulcer in his own person, and concludes from this and from his experience with other cases, that in many instances no drugs are needed, except purgatives to produce a daily evacuation, and that reliance is to be placed on dietetic treatment alone. With a diet which produces but little fecal matter, as with an exclusive milk diet, the daily opening of the bowels is not so necessary, but with a mixed diet this is imperative, in order to relieve thereby any congestion of the vessels of the stomach. For this purpose he took himself, and gave to others, Hunyadi-Janos water, and never with any unpleasant effects. The diet should be unirritating, but not every stomach will stand for any length of time a too restricted diet, and some stomachs, even with ulcer, seem to bear better those foods considered less digestible than those classed as easy of digestion. Often the instinct of the patient is a better guide than the most rational theory. Rest is a very important factor of the treatment, the degree of it depending on the severity of the symptoms. It is also important to limit the number of meals and the quantity of food ingested, in order that the stomach may be empty and at rest after the period of digestion should be over. The loss of weight caused in this way will be soon made up when recovery commences, and at this time the administration of additional light meals may be begun.

A New Test for the Recognition of Free Hydrochloric Acid in the Gastric Contents.

J. Boas (*Centralbl. f. klin. Med.*, 1888, No. 45, 817) recommends resorcin for this purpose, as being a test not responsive to any organic acids or to the acid albuminous compounds. The reagent is composed of resorcin 5 grammes, sugar 3 grammes, and sufficient dilute spirit to make 100 grammes. Five or six drops, or less, of the gastric secretion are mixed with two or three drops of this solution, and heated in a watch-glass or on a porcelain plate over a small flame. When completely evaporated, there develops a rose-red or cinnabar-red color, resembling that of the phloroglucin-vanillin reaction, which gradu-

ally becomes discolored on cooling. The reaction can in like manner be developed on a piece of filter paper. Too strong a heat must not be employed, or the sugar is burnt, and the test does not succeed. Several qualities are necessary to give value to any test for hydrochloric acid in the gastric secretion. These are clearness and constancy, the absolute failure of any reaction in the absence of free hydrochloric acid, and finally the absence of any reaction with organic acids.

After repeated testing of the resorcin sugar test, the author concludes that in all cases in which tropäolin, methyl-violet, and the Günzburg and other tests give a positive result, this will do so likewise. A very convenient method is to administer to the patient, shortly before lavage is performed, a capsule containing 0.2 gramme of resorcin and 0.1 gramme of sugar. A few drops of the filtered or unfiltered gastric contents can then be evaporated on the porcelain plate as before. The author found this method very satisfactory.

The Value of the Color Reactions for Free Hydrochloric Acid in the Gastric Contents.

Schaeffer (*Zeitschr. f. klin. Med.*, B. xv. 162, 1888) reviews the different color reactions for hydrochloric acid, the principal ones of these being, he says, 1, the aniline colors; 2, tropäolin; 3, Congo-red; 4, Mohr's reagent; 5, Uffelmann's test; 6, Günzburg's reagent. Congo-red he considers of no value, for, as Boas has shown, lactic acid will produce the same blueing as hydrochloric acid does. Uffelmann's carbolated-iron reaction is not at all delicate for the inorganic acid. Moreover, a yellow color is produced by a mixture of lactic and hydrochloric acids in certain proportions. For lactic acid the test is delicate, provided no glucose be present, with which it will produce the same tint; and glucose occurs in every stomach when the starches have been ingested.

Mohr's reagent is claimed to be reliable, and the author admits that it is so, in so far that no other substance but hydrochloric acid will give with it the peculiar coloration. His experiments have shown him, however, that it is far from delicate, and that it often fails to reveal the acid when other tests show its presence. Tropäolin is uninfluenced by any organic acid, and is very delicate, especially when used in the form of a tropäolin paper. It is decidedly to be preferred to Mohr's test, though it is not so sensitive as the methyl-violet and Günzburg's reactions.

Of the aniline colors, methyl-violet is the only one largely used, the others not having been found satisfactory. It is very delicate, but unfortunately not reliable, since other substances will produce the same change of color. Especially is it true that a five per cent. solution of lactic acid (a strength not so seldom found in the stomach) and of peptone will produce it. The changing from violet to blue may occur, therefore, when there is not a trace of hydrochloric acid present, but the absence of this change is a positive proof of the absence of the acid. Günzburg's reagent is composed of 2 grammes phloroglucin and 1 gramme vanillin, dissolved in 30 c. cm. alcohol. One or two drops of this are mixed with the same quantity of the fluid from the gastric contents, and heated gently in a shallow porcelain dish. At the edges of the fluid, as it is rolled back and forth, there develops a deep red color if organic

acids are present. The author has made careful trials of this reagent, and finds that when the red color does not appear, the other reactions for hydrochloric acid are also absent. He also details his experiments in full which convinced him that the Günzburg reaction was only absent when there was a complete absence of digestive power in the gastric secretion, depending on a diminution of the free hydrochloric acid. The reaction is not produced by any other body occurring in the gastric secretion than free hydrochloric acid, and is not interfered with by the presence of any other substance. The acid may be present and yet not answer to the test; it being combined with inorganic and organic bases. Thus, in carcinoma ventriculi, if hydrochloric acid be added to the gastric contents, some of it will disappear, having replaced the lactic acid in its combinations and set it free. In these cases, of course, the phloroglucin-vanillin test is negative; but it is always positive when any free hydrochloric acid *capable of digesting* is present. This last clause is, after all, the most important one, for whether any other form of the acid occurs is a matter of indifference from a clinical standpoint.

Congo Paper as a Reagent for Free Hydrochloric Acid in the Gastric Contents.

R. Shaeffer (*Centralb. f. klin. Med.*, Nov. 17, 1888, 841), after discussing at length the value of Congo-red as a test for hydrochloric acid, and showing that it will also respond to lactic acid, even in a dilution of 0.38 per cent., concludes that the blueing of Congo cannot, in every case, be taken as absolute proof that this is produced by hydrochloric acid, but that some control test must always be employed, using a reagent (like tropäolin or that of Günzburg) which is unequivocal.

Fatal Gastro-enteritis Produced by Ptomaine.

Bamberger (quoted in *Deutsch. med. Woch.*, 1889, No. 1, from *Wien. klin. Woch*, 1888, No. 33) publishes an interesting case in which a previously healthy patient was attacked, after eating tainted sausages, by vomiting, headache, and feverishness, followed in a few days by chills, diarrhœa, and tenesmus, and then by high fever, meteorism, and tenderness in the ilio-cæcal region. The fever curve then became that typical of pyæmia; there was peptonuria, enlargement of the spleen, and roseolar and petechial spots. In the course of a couple of weeks evidences of suppurative hepatitis developed. The autopsy revealed an abscess of the pancreas, produced, the author believes, by the action of ptomaine, and numerous abscesses in the liver secondary to the pancreatic affection.

The Use of Calomel and Digitalis for Ascites following Hepatic Cirrhosis.

There has been abundant experience on the employment of calomel as a diuretic in hydrops, especially when of cardiac or renal origin. For that resulting from diseases of the liver it has been but little used, and the opinions of writers differ as to its value in these cases. Schwass (*Berlin. klin. Wochenschr.*, 1888, No. 38, 762) would warmly recommend it in ascites of this

nature, having seen excellent and even surprising results follow the administration of the drug. He has also combined calomel with digitalis in the treatment of ten cases, with a permanent removal of the ascites in five of them. In two of these the combination was effective, though either drug alone was of no avail. The author believes that another advantage of the simultaneous exhibition of the two drugs is that the calomel is better tolerated and for a longer time, while the stomatitis, salivation, and gastro-intestinal disturbance are either absent, less intense, or develop later. He reports the five successful cases in detail. In all of them the diuretic action was excellent. It is to be remarked, also, that they came under treatment rather early in the disease. Those in which the treatment was commenced in advanced stages were either not benefited at all, or helped only temporarily. He would recommend the combination of calomel and digitalis for all cases of ascites from hepatic cirrhosis uncomplicated by severe disease of other organs (not including cardiac diseases), and in which the affection has not reached the last stages. Where the effusion is very large it is well to aspirate, in order to relieve the pressure on the ureters, and thus remove any hindrance to the diuretic action of the drugs. This diuretic treatment, though not, of course, curing the hepatic affection, may prolong the life of the patient for months or years.

The Dietetic Treatment of Chronic Bright's Disease.

Beverley Robinson (*Medical Record*, January 5, 1889) says that though the etiology, pathology, and medicinal treatment of Bright's disease are fully treated in the various text-books and journals, but little is to be learned concerning the diet in albuminuria, and this little is contradictory. He divides chronic Bright's disease into the three well-recognized forms: 1. Chronic parenchymatous nephritis; 2. Lardaceous disease of the kidney; 3. Interstitial nephritis.

1. The first form may begin insidiously as a chronic disease, or may follow an acute affection. In either case the same rules of diet may be applied. As food an exclusive milk diet is generally considered to be the best, and the author would favor its employment, because it is easily assimilated, gives sufficient nourishment, produces less urea, and flushes the kidneys with a large amount of fluid. When milk cannot in any way be taken, we are obliged to resort to broths and light farinaceous foods. As a beverage the author prefers pure spring water, of which several pints a day should be drunk. Pure or mildly alkaline water in large quantities is an excellent unirritating diuretic. When milk is not well borne alone, it may sometimes be taken mixed with lime water, carbonic water, Vichy, etc., or as koumiss or peptonized milk. When milk is used pure, it had better be unskimmed, unless it produces digestive troubles, in which case it is best to skim it. From two and a half to four quarts are sufficient to prevent bodily loss.

As a result of clinical experiments instituted by him, and which he details, and from the experience of others, the author believes that a milk diet notably diminishes the amount of albumin excreted by the kidneys. After a time, an exclusive fluid diet may be productive of harm, by causing an over-dilution of the gastric juice, and too great an excretion of urine, or the symptoms of anæmia and exhaustion. In such cases, especially if the amount of albumin be small, the exclusive milk diet may be supplemented by a certain amount

of farinaceous or vegetable food. If even this diet becomes objectionable, a small amount of broiled or roasted meat must be allowed daily, taken at an early dinner. Alcoholic stimulants throw more work on the kidneys, and increase the amount of albumin excreted. They are, therefore, to be avoided, except when called for by certain symptoms, as exhaustion, or the profound cerebral anæmia which so often accompanies uræmic symptoms.

2. The dietetic treatment of lardaceous disease of the kidney depends somewhat on its cause. If it be phthisis, the diet is that appropriate for this malady, without special reference to the renal disorder. When the disease which caused the renal changes has disappeared, the diet should be that advised for chronic parenchymatous nephritis.

3. In the dietetic treatment of this form of nephritis, we must endeavor to prevent the accumulation of urea in the blood, and to make up for the loss of albumin. It is not possible to prohibit all nitrogenous food, but the amount allowed should be very small. Milk and cream should be given in abundance, and the other articles of the diet supplied from the vegetable kingdom. In advanced cases, an exclusive milk diet must be employed, and the milk may be diluted with Vichy, if necessary, to render it more palatable. Alcoholic stimulants should be avoided as far as possible, except sometimes in the treatment of uræmia, as stated above. The author closes his paper with a series of quotations of the views of various modern writers regarding the dietetic management of chronic Bright's disease.

The Varieties of Nephritis following Acute Infectious Diseases in Children.

Von Jaksch (*Wien. med. Presse*, No. 49, 1888) shows that febrile albuminuria is much more frequent in adults than in children; the ratio being, in his experience, 35.2 per cent. in the former, and only 19.6 per cent. in the latter. In many cases of acute infectious diseases in children the urine contains unusually large numbers of microörganisms of different kinds, as long as fever persists, so that the author is disposed to consider the kidneys in these diseases as the organs for the elimination of microörganisms, though not always of those which produce the disease in the individual cases. Letzerich has described a form of nephritis caused by a certain microbe which he describes. V. Jaksch, however, says that more than one form of microorganism is found in the kidneys in children with acute nephritis. There are different varieties of cocci associated with sepsis besides the coccus of erysipelas, which may produce in children severe renal affections with the symptoms of acute inflammation.

In discussing the varieties of nephritis which occur in children, he says that the primary form is by no means so rare as is generally supposed, and that the chronic form is also not unusual. Clinically there may be diagnosed acute nephritis, chronic nephritis, sometimes the cases of chronic nephritis accompanied by fatty change of the kidney, contracted kidney, and amyloid degeneration of the kidney. In explaining his views on uræmia and ammonæmia he claims that the symptoms of uræmic intoxication are produced perhaps in part by retention of acids in the blood, but principally by the retention of an alkaloidal substance which normally is present in the urine.

Ammonæmia is in like manner due to the presence in the blood of an alkaloidal substance. In this case, however, it is produced in the bladder, where, under the influence of microörganisms, the urine decomposes and sets up a cystitis, thus allowing the poison to be absorbed.

In regard to the therapy, the author says that numerous experiments have taught him that even large doses of most of the antipyretics are not irritating to the kidneys, but that they also have no influence on the nephritis. The only exception is salicylic acid, which, given from the beginning of scarlatina, not only seems to diminish the intensity of the attack, but to banish the danger of scarlatinal nephritis. In general, however, he is opposed to all vigorous treatment, and recommends a strict milk diet as the most rational means of cure.

HAGENBACH (*Ibid.*), in discussing more particularly the clinical side of the subject, refers to the great frequency of renal inflammation after scarlet fever. In 81 autopsies on cases of scarlatina at the Basle hospital, nephritis was found 55 times. The first appearance of the inflammation may occur at different periods of the disease. Its symptoms are various, and he has seen uræmia only 27 times in 416 cases. There seems to be a family predisposition to scarlatinal nephritis. Hypertrophy and dilatation of the left ventricle are very common. The affection lasts two or three weeks or longer, and usuully ends in recovery. Albuminuria is rather common in diphtheria, the author having observed nephritis 52 times in 150 autopsies. According to his experience, the albuminuria usually occurs in the first week of the disease, and is nearly always due to renal inflammation, though in very severe cases cardiac weakness or laryngeal stenosis may bring it about. Nephritis is rare in measles, varicella and rubella, and the same is true of it in catarrhal angina, parotitis, and aphthous stomatitis. He has seen it occur but rarely in typhoid, the kidneys being involved only 8 times in 300 cases, while in 24 autopsies there was nephritis in but 3 instances.

THE RELATIVE VALUE OF OPIUM, MORPHINE, AND CODEINE IN DIABETES MELLITUS.

Codeine, says FRASER (*Brit. Med. Journ.*, January 19, 1889, 118), is in its important actions only a weak morphine diluted by the addition to it of methyl. As it has been so largely used in the treatment of diabetes, he has made some clinical experiments with it in this disease, comparing it with the action of opium and of morphia. These seem to indicate that codeine is a less powerful remedy in diabetes than either of the other drugs, and to confirm the view that in its therapeutic value it ranks as a weak or diluted morphia. As its cost is about three times that of morphia, and as the large demand for it has led to its being largely manufactured from the latter drug, and being, therefore, an artificial product, there should be more clear evidence of its superiority to justify its administration in this disease.

ALKALINE INTRA-VENOUS INJECTIONS IN DIABETES

Last year R. Lepine reported the case of a patient with diabetes already in an advanced state of coma, to whom he gave an intra-venous injection of 3 litres of warm water, containing 44 grammes of bicarbonate of soda. It

could not be said that the immediate effect was bad, and the treatment could not be condemned as useless, because the condition of the patient was so extreme when it was instituted. Minkowski having since reported a successful case, LEPINE (*Rev. de Méd.*, December, 1888, 1004) records another instance in which he followed this procedure. The patient, a well-marked case of diabetes, suffered from headache, trembling of the limbs, unconsciousness, clonic convulsions, rapid pulse, and hallucinations. The urine had a very characteristic sour odor, and examination at different times showed it to contain formic acid, and very probably oxybutyric acid also. In view of the patient's condition it was decided to try an intra-venous injection; and accordingly 600 c. cm. of a warm sterilized 5 per cent. solution of bicarbonate of soda were administered in this way. During the process the pulse became feebler, and afterward there was an intense chill, followed by a rise of temperature, an increase in the rapidity of the pulse, and a semi-comatose condition. Later this deepened into profound coma, followed by death. The autopsy revealed no condition sufficient to explain the fatal termination of the case. Shortly before death the patient voided neutral or feebly alkaline urine.

The author concludes from this experience that although this alkalinity of the urine was produced by the saline injection, it did not relieve the diabetic symptoms, but rather aggravated the cerebral condition, and accelerated the fatal ending.

A GOOD BREAD FOR DIABETICS.

Admitting that the so-called gluten flours are not what they should be, and that the first thing in the treatment of diabetes is the avoidance of starches and sugar, J. A. JEFFRIES (*Bost. Med. and Surg. Journ.*, Jan. 14, 1889, p. 87) discusses the production of a suitable bread for these cases. Experience seems to show that it is the form and taste of bread which are desired by the patient, and not that starch is craved by the stomach and intestines. He has succeeded in preparing two kinds of bread. The first is simply an improvement on those now in use, but has the merit of being cheap and easily made. The recipe is: 1 cup of Graham flour; 1 cup of the best bran previously scalded with 1 cup of boiling water; 2 eggs; German yeast or baking powder; salt to taste; 1 cup of milk or water. To be mixed with a spoon. This bread contains 17.72 per cent. of starch, equalling 19.68 per cent. of sugar. The second bread, he claims, is a great improvement on those ordinarily in use, but it is as yet difficult to prepare and expensive. It is made from gluten, which may be obtained from the starch factories, and ground into a fine flour. The author procured that which he employed from Thomas Metcalf & Co.

The formula for the bread is: 1 cup of gluten flour; 1 cup of the best bran previously scalded; 1 teaspoonful of baking powder; salt to taste; 2 eggs; 1 cup of milk or water. This bread, also, must be mixed with a spoon, as to use the hands would be even worse than in the making of ordinary bread. Bread thus made is palatable, nutritious, healthful, and contains only 4.57 per cent. of starch (5.08 per cent. of sugar) according to the analysis of Dr. Harrington.

WOLTERING (*Berlin. klin. Wochenschr.*, 1888, No. 38) also describes a gluten bread similar to the above. He gives analyses of wheat flour, and then of

gluten, comparing the latter with the albumen of eggs and of flesh, and showing that it is very similar to them in chemical composition. A large quantity of gluten is produced in the manufacture of starch, but finds little employment, except in making shoemakers' paste. The author has made use of a gluten flour manufactured by Joh. Hunchausen, of Hamm. The formula for the preparation of a bread for diabetic patients is as follows: 500 grammes of gluten flour are stirred with 1½ heaping tablespoonfuls of baking powder and sifted, and then rubbed vigorously in a bowl with a wooden spoon and ¼ litre of lukewarm water added. Nothing further is needed before baking.

Bread thus prepared has a somewhat bitter-sour taste, which is not prevented by the addition of eggs, milk, butter or bicarbonate of soda. Saccharin only gives an unpleasant sweetish taste. Sweet cream is, perhaps, the best ingredient for this purpose. If the bread when cut be spread with good butter and covered with ham, meat, or anchovies, it becomes very palatable. In twenty-four to forty-eight hours this gluten bread becomes more doughy, and must then be dried. For this purpose it is cut into small pieces the size of the little finger, and browned in the oven until it becomes the color of Zwieback, and quite crisp. The author is himself a diabetic, and has tried many kinds of diabetic bread, none of which was so agreeable to him, or so easily digested as that which he describes. This bread contains, on the average, 55 per cent. of albumen, 0.20 per cent. of fat, and only 2.75 per cent. of starch.

Contribution to the Study of the Innervation of the Bladder, Rectum, and Genital Function in Man.

Bernhardt (*Berliner klin. Wochensch.*, 1888, No. 32, 637) reports a case of a man who fell from the second story upon his seat, and immediately experienced pain in his back, and inability to pass urine, though with no incontinence, while the feces were evacuated without his knowledge or control. When examined, nine days after the accident, this condition described still persisted. He could stand alone, but with pain in the back in the region of the seventh to the twelfth dorsal vertebræ, and this locality seemed somewhat swollen, and was painful on pressure. While lying in bed both legs could be moved in a normal manner, and without pain. The reflexes were normal, tactile sensibility, and temperature and muscle sense were undisturbed in the lower extremities, except on the inner half of the posterior surface of both thighs, beginning at the upper border of the lower third of the thigh, and extending upward to those parts of the buttocks contiguous to the anal fissure. In this there was total anæsthesia to touch, differences of temperature, and pricking with a needle. The anus, crotch, perineum, scrotum, and penis were also involved, but the inner surface of the thighs, the sacral region, the skin of the belly and groins were normal, and the testicles themselves were sensitive to pressure. The patient had been under observation four months at the time his case was reported, and had been persistently treated with electricity, with very little improvement.

It is interesting to note that erections occurred under normal conditions, and that the patient was perfectly able to effect coitus, feeling all the sensation natural to it. The semen, however, remained in the urethra, and flowed slowly and in drops from it, only after coitus had been completed.

The author then discusses the bearing of the symptoms on the nature of the injury, and shows that the lumbar enlargement, the exit of the nerve, and the lumbar plexus could not have been injured. It is impossible to determine what the pathological nature of the lesion really was, but it is certain that there was either a central or peripheral paralysis of the pudendal plexus. He details in brief several similar cases reported by others. These, with his own case, prove that the function of the bladder and rectum is dependent on a normal condition of the lowest part of the spinal cord, below the lumbar enlargement, and of the nerves arising from it. It is evident that the same symptoms may be produced by a disease of the nerves of the coccygeal and pudendal plexuses, without any involvement of the spinal cord itself. The case now reported teaches, therefore, that the characteristic symptoms of paralysis of the bladder and rectum with the anæsthetic symptoms described may be produced by an acute trauma; that the nerves controlling erection and ejaculation are separated from those which preside over the rectum and bladder; and that potence and *libido coeundi* may persist, though there be an *impotentia generandi*, due to lack of expulsive power.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

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Clinical Experiments with Ether.

Dr. Fritz Feuter (*Deutsche Zeitschrift für Chirurgie*, December, 1888), in an elaborate article upon ether anæsthetization, reviews the literature of the subject, and records his own experience in a large number of cases. He has always employed a large face mask, around the edges of which a folded towel is laid to prevent evaporation of the drug.

The following four points were separately dealt with as being of most importance: First, the time from the beginning of anæsthetization until anæsthesia is produced; second, the quantity of ether necessary for this; third, the ttoal quantity of ether used; and fourth, the duration of the anæsthesia. His method of administration is as follows: From a graduated bottle about fifty centimetres are poured upon the mask for an adult, for children half this quantity is sufficient. The mask is then slowly brought down to the face, so that the patient gradually becomes accustomed to the fumes; this does away with that painful choking which always occurs if the mask is abruptly placed upon the face. So soon as the mask is well over the face, a folded towel is placed around it, and the mask is not removed again until there is complete relaxation of the extremities. In this way the patient is continually inhaling ether fumes, for even his exhalations are partly reinhaled. and assist in pro-

ducing anæsthesia. With these precautions carefully adhered to, the author has invariably found that complete anæsthesia could be induced within two minutes. More than this, the amount of ether subsequently required to maintain unconsciousness is remarkably small. Often in operations of over a half hour's duration, and even longer, no addition of ether is necessary.

In his opinion the two most important points upon which the success of etherization depends, are the concentration of the fumes and the non-removal of the mask. The nausea following etherization he believes to be due to the swallowing of saliva which is filled with ether, the secretion being greatly increased by the drug; naturally, therefore, the less ether used the greater probability that nausea will not be produced; and indeed his experiments seem to justify this conclusion, for in 150 cases vomiting only occurred in 10, and in two of these the patients had taken a meal immediately before the operation. In quoting the statistics of the Geneva clinics, he states that out of 553 cases, vomiting occurred in 148. Feuter continues by giving a list of personal observations which differ but slightly from those of other practitioners. One fact, however, deserves special notice, viz., he has observed in several cases that when the patient has taken a moderate quantity of alcohol just previous to the operation that the anæsthetization is greatly accelerated; indeed, in one instance hardly a minute passed before the patient was in a complete stupor. In the second part of his article, which Feuter designates the "experimental part," some cases are cited in which serious results have followed the use of the drug. Emmet was the first who pointed to the danger of etherizing patients affected with nephritic troubles. He claims that it is absolutely necessary to examine carefully the urine of such patients before operating, and holds that the presence of albumin is a positive contra-indication for the use of ether, and direct indication for the use of chloroform. Other authorities are of the same opinion.

In direct contradiction of the above statements, Feuter declares that he has frequently etherized cases of albuminuria without these symptoms resulting. Of extreme interest was the case of a child of five months which was operated upon for cavernous angioma of the left arm and the right side of the thorax. It was not noticed upon admission that the child was suffering from acute albuminuria. The cauterization of the angioma necessitated anæsthetization, and this was done with ether. Three days before the operation large quantities of albumin had been traced in the urine, but neither immediately after the operation, nor until three days later, could the slightest trace be found. Another similar case is quoted. Feuter then records six experiments upon dogs, which he made at the Pharmaceutical Institute of Berne, with the following result: A general decrease of temperature was always observable at the rate of about one degree centigrade an hour. After death the whole abdominal and thoracic cavities were pervaded by a strong smell of ether. The heart was found in diastole. Neither macroscopically nor microscopically did the kidneys show any change. Albumin was never found in the urine. This, he thinks, goes to prove that the kidneys are not affected by etherization. Death never occurred except when intentionally caused by excluding all air from the animal. Accompanying the article are complete tables which clearly elucidate both the experiments and conclusions of the author.

Pepsin in Surgery.

Dr. Henry B. Douglass (*Med. Record*, Dec. 22, 1888) has recently employed pepsin in the form of scales or as an ointment, with lanolin, 1 : 5, in ulcers, in the removal of cicatricial tissue, etc., and concludes that: 1. In all ulcerations covered with a slough, or having a membranous base, pepsin is of use to digest this slough and bring about a healthy condition. 2. The efficiency of the pepsin ceases when the slough has dissolved. 3. In cicatricial tissue causing ankylosis pepsin is of use by dissolving the cellular element. On this condition pepsin may act similarly to mercury and the iodides, or as a digestive.

Septic Intoxication after Enemata.

The absorption into the blood and lymph-streams of elements from decomposing masses in the intestine is a common result of habitual constipation. The condition is chronic, and its effects are slowly induced.

Mr. G. H. Burford (*The Lancet*, Dec. 15, 1888) calls attention to a form of toxæmia, similar in origin, but suddenly induced and characterized by symptoms, at least in pronounced cases, peculiar to septic intoxication of a mild type. Inspissated but decomposing fecal masses, frequently associated with an arid, scarcely secreting mucous membrane, are innocuous so long as their dryness is maintained. If, in such case, a quantity of warm, bland fluid be suddenly introduced from without into the gut, solution of some of the organic products of decomposition is effected, osmosis goes on even during the short period of temporary retention, and lymph-channels and blood-streams are charged with a dilute, diffusible septic poison. As from other parts of the alimentary canal, the effect of such general diffusion is exhibited often as a sharp attack of urticaria; but, as here, the diffusible poison is specially noxious, mild septic symptoms are sometimes superadded.

He details eleven cases in which these conditions were superinduced by enemata, and summarizes them as follows:

These cases constitute an ascending series, in which the symptoms become progressively more pronounced and extensive. Commencing with a simple erythematous rash, localized in distribution and mild in type, the next grade presents a typical urticaria, with minute but obvious wheals diffused over the trunk and extremities, and lasting about forty-eight hours, with sometimes some concomitant malaise. Finally, the severest form has superadded to these skin symptoms such undoubted signs of mild septic intoxication as subacute pyrexia and, as a concurrent, sore throat, the latter existing for from three to four days.

These sequences presented themselves, on the average, after from three to four per cent. of the enemas administered. They are particularly liable to ensue if enemata be given within three or four days after the administration of ether, in cases in which the intestines have not been thoroughly cleared out beforehand. They may appear indifferently after the use of any ordinary fluid as injection, provided it be used in sufficient quantity. With glycerine enemata, where very small quantities only are used, no such results have accrued. He has seen cases in which these post-enemal appearances have been

diagnosticated as mild scarlatina or rötheln; and it is with a view of eliminating this from the category of doubtful eruptions that he has cited the cases as illustrative of a hitherto undescribed condition, as well as to record clinical observations regarding the influence of altered alimentary secretions on intestinal resorption.

A New Method of Raising the Epiglottis.

Dr. Benjamin Howard (*The Lancet*, Nov. 17, 1888) reports, at considerable length, his researches as to the best method by which, in cases of apnœa, with falling backward of the epiglottis, the latter can be raised so as to permit of the free entry of air to the respiratory passages. He gives numerous reasons for believing that traction on the tongue does not have the desired effect upon the epiglottis, and shows that the only practical method of attaining this end is by extreme extension of the head and neck. For making this he gives the following reasons:

Traction on the tongue is ineffectual because:

a. The tractile force supposed to be exercised upon the epiglottis is arrested chiefly by the frænum linguæ, and through the muscular fibres within it is expended upon the inferior maxilla into the genial tubercles of which they are inserted.

b. The surviving force is expended almost entirely upon, and intercepted by, the anterior pillars of the fauces.

c. For any tractile force which may survive, a continuous and sufficient medium for its transmission to the epiglottis is wanting.

Extension of the head and neck is the only sure means of causing instant and complete elevation of the epiglottis, because: by a three-linked chain, in which the hyo-epiglottic ligament is the lower link, the body of the hyoid bone the central link, and the combined genio- and mylo-hyoidei muscles the upper link, the epiglottis is so connected to the body of the inferior maxilla, that above a certain point, as the body of the lower jaw is moved upward, the epiglottis instantly, irresistibly, and inevitably moves upward exactly in unison till it is erect. The violent wrenching asunder of the clenched teeth, in proportion as it depresses the body of the inferior maxilla, antagonizes a distinct effort of Nature to maintain the elevation of the epiglottis.

Having, by bringing the patient to the edge of the table or bed, or by elevation of the chest, provided that the head may swing quite free, with one hand under the chin and the other on the vertex, steadily but firmly carry the head backward and downward. The neck will share the motion, which must be continued until the utmost possible extension of both head and neck is obtained. Assuming the mouth to be shut and the inferior border of the inferior maxilla to be at a right angle with the cervical column, as in the average recumbent posture, the head must be continued to be extended from thirty to thirty-five degrees more before it is possible for the epiglottis to be affected at all. Not until after the skin from the symphysis to the sternum is quite tense do the relaxed muscles in question beneath it become tense at all. These being tense, from this point the elevation of the epiglottis begins.

In a nut-shell: Make the line of skin from the chin to the sternum as

straight as it can be made, and the complete elevation of the epiglottis is assured.

By extension of the head and neck carried to the utmost, the remaining obstructions from the backward-fallen tongue, the velum palati, and uvula, are also simultaneously removed, and the entire pharanx is enlarged throughout. Because: *a.* The tongue, the dorsum of which before fell by gravitation upon the then horizontal posterior wall of the pharynx, falls upon the now horizontal arch of the palate. *b.* The velum palati, by means of the great tension of the palato-pharyngei muscles, is pulled away from the posterior wall of the pharynx, the entire membrane being stretched tightly forward and downward, behind part of the dorsum of the tongue, helping to complete the shutting of the tongue out of the pharynx and into the mouth, and together with its dorsum forming a partition—the anterior wall of a new air-way, thus created and maintained. *c.* The pharynx, anteriorly, from the base of the tongue to the cricoid cartilage, is stretched strongly forward by the extreme tension of the sterno-thyroidei muscles.

Dr. Howard summarizes his interesting paper as follows:

1. Contrary to universal belief, traction of the tongue cannot raise the epiglottis. 2. By sufficient extension of the head and neck, whether by volition, instinct, reflex action, or by the effort of another, whether in the healthy, the dying, or the dead, the epiglottis is instantly, and beyond prevention, made completely erect. 3. By complete extension of the head and neck the tongue and velum are as respiratory obstructions, simultaneously with the epiglottis, removed; and without a moment's delay the entire air-way can be straightened, enlarged, and be made free throughout by the nearest person. 4 If syncope happens to be the chief factor, or only incidental, this also gets thus the quickest and best corrective.

He expresses the hope and confident belief, that the facts above submitted will be found to be permanent additions to our means of averting death.

A New Dilator for Tracheotomy.

Mr. Joseph Collier calls attention (*The Lancet*, Dec. 22, 1888) to the difficulty in introduction of the tube arising from the interposition of fascia in those cases in which great urgency has led to hasty opening of the trachea without first exposing and cleaning it. To avoid this he has devised a dilator which differs from ordinary dilators in the following particulars:

First, it has a cross, or scissor action, since that is the one to which most persons are accustomed, and which is therefore desirable in such an instrument; secondly, there is no outwardly projecting lip at the extremity, since the difficulty lies in inserting the dilator, and not in keeping it in place when once inserted; thirdly, and of most importance, there is a half groove on the inner surface of each dilating limb, so that when the instrument is closed there is formed a full groove as on a director. It is advised that the operation be performed as follows: The patient's head being thrown well back so as to expose clearly and put on stretch the parts in front of the neck, the usual incision is made and carried down between the sterno-hyoid muscles. If extreme rapidity is indicated, the knife, held perpendicularly, with its back toward the sternum, and guarded from going too deeply by the index

finger placed on the side of the blade, is pushed into the trachea, and an incision of the required length is made upward through the tube and the fascial layers covering it. Then, before removing the scalpel, the groove on the dilator is applied to the back of the blade, and, with this as a guide, the dilator is slipped down into the trachea and the scalpel withdrawn. The dilator can now be opened, when air freely enters the trachea, and a tube can be inserted with ease, as it is to some extent guided by the half grooves.

Distention of the Stomach and Large Intestine in the Diagnosis of Abdominal Tumors.

Winkowski (*Berliner klin. Wochen.*, 1888, xxxi.) has examined more than one hundred abdominal tumors with reference to their changes of position when the stomach is distended with carbonic acid and the large intestine with water. Observations of the exact relations of the tumor were taken before and after such distention. He found that tumors of the liver and gall-bladder are pressed upward and to the right; tumors of the spleen are pushed to the left and downward by distention of the stomach, to the left and upward by distention of the bowel; tumors of the kidney are but little affected by distending the stomach, but if the bowel is distended will either rise and apparently disappear, or will be pressed backward and outward. Tumors of the colon become more defined and broader; growths involving the stomach itself behave differently, according to whether they affect the lesser or greater curvature, in the former case rising and disappearing, in the latter remaining broader and less defined in area.

Pelvic Hæmatocele.

Dr. Charles B. Porter reports (*The Boston Med. and Surg. Journal*, December 27, 1888) the case of a woman, aged thirty-two years, who was admitted to the hospital with severe abdominal pain, which had come on suddenly without prodromata, and was accompanied by bilious vomiting, a circumscribed swelling, dull on percussion, was found in the right iliac fossa. Three days later, pain continuing and the swelling remaining unchanged, an incision was made in the right iliac region, along the inner half of Poupart's ligament, and about an inch above it. On opening the peritoneum there came at once into view a tumor, evidently cystic, its walls being very dark colored and glistening. The cyst did not appear to be adherent, but its relations were not thoroughly explored, for fear of rupture of its walls, which were exceedingly tense. Using fine, round needles and silk sutures, the cyst wall was stitched to the anterior parietal peritoneum in such a manner that the presenting portion of the cyst, about the size of a half dollar, was entirely shut off from the general peritoneal cavity. In this surface a free opening was made, and about three pints of dark, bloody fluid escaped. There were no clots. Exploration of the cyst discovered several flesh-like projections into its cavity, feeling like clots; these were not disturbed. The edges of the wound of the cyst were stitched to the abdominal wound, and a large drainage tube, reaching to the bottom of the cyst, was fastened in. The cavity was then thoroughly washed out with a hot solution of sulpho-naphthol.

The patient made an uninterrupted recovery. The fluid was thought to be ascitic fluid with an admixture of blood.

A New Treatment for Superficial Cysts.

Barth (*L' Union Médicale*, Jan. 15, 1889), in treating lymphadenomata by hypodermatic injections of Fowler's solution, observed that after one or two injections a little swelling and tenderness occurred, threatening the development of an abscess, and that if treatment were arrested the tumor not only returned to its original dimensions, but often underwent a consecutive atrophy and even entirely disappeared. Winiwarder believed that this was due to the action of arsenious acid upon the albuminoid tissues producing a kind of necrobiosis. Whatever the theory, the same action appears to occur in many cases of cystic growths. Barth reports 8 cases, 5 of synovial cysts, 3 of sebaceous cysts, 6 of which were cured by the injection into their cavities of one or two drops of Fowler's solution; in 1 of the 2 remaining cases the cyst, which had disappeared, returned, and in the last case the pain of the first injection was so great that the patient declined further treatment. Barth directs attention to the necessity of absolute asepsis during the operation, which should not be employed in the case of tumors of a doubtful character, or especially in those which already seem disposed to spread. The injection should not be made through tissues which contain the microörganisms of pus, or into tubercular tissues. The pain of the operation may be much diminished by adding to the Fowler's solution one to two per cent. of muriate of cocaine, a combination which Barth has found of great value in intraglandular injections.

Treatment of Fractures at the Lower End of the Humerus.

Dr. Charles A. Powers records (*The Medical Record*, Dec. 22, 1888) the results obtained in fifty consecutive cases of fracture at the lower end of the humerus, treated by plaster splints applied with the elbow at right angles or thereabouts. He recapitulates as follows:

Thirty-six completely regained the functions and present no deformity; in seven the functions are a few degrees short of full; in one they are very limited; in two there is moderate deformity, with a slight loss of function; in one there is extreme gun-stock deformity, with complete use of the limb; one is ankylosed, and three are yet in the second month of treatment.

In most of the foregoing cases the injury was ascribed to a fall on the elbow, this varying from a slip on the sidewalk or a fall from a chair to a descent of ten feet; in two to a fall on the hand, in one to a passage of a wagon-wheel, in one to a violent wrench to the elbow; in several the nature of the accident was not known.

From a diagnostic point of view, very much importance should not attach to the nature of the injury. Diagnosis must be based on the evidence gotten by physical examination of the affected part.

The presence of bony crepitus and abnormal mobility are the most valuable diagnostic points. Disability, local pain and tenderness, ecchymosis, and swelling are common to contusions and sprains, as well as to fractures, though present, as a rule, to a greater degree in the latter. We are told to see that

the bony prominences, the olecranon, head of the radius, and epicondyles bear their normal relation one to the other. This is good as far as it goes; it bars out dislocation; but there is frequently fracture without appreciable displacement. Well-localized bony crepitus and a false point of motion are the evidences on which our diagnosis must be based.

By firmly grasping the humeral shaft with one hand and seizing the condyles transversely, "rocking" the lower part strongly on the upper will determine whether the condylar portion is attached or detached. Each epicondyle and condyle may, in turn, be subjected to a like manipulation. Should the base be broken off, one condyle must be rocked upon the other to determine the presence of three or more fragments. If much swelling be present, it is not easy to grasp the condyles, yet steady, firm pressure will sink the fingers until they reach and hold the bony joints. Swelling obscures the outer condyles to a much greater extent than the inner. Even though the effusion be great, there is never any difficulty in grasping the latter. The manipulation should be gentle, yet firm, and one should apply all due force to the bony parts.

Nerve-stretching in Leprosy.

Dr. Beaven Rake records (*British Medical Journal*, December 22, 1888) the results of 100 operations performed on 60 patients. In 38 cases the indication for the operation was ulceration, and, as a rule, more or less good effect was observed, especially in perforating ulcer of the sole. In 9 cases the stretching was done for pain, in several with remarkably satisfactory result. In 33 cases of stretching for anæsthesia, the operation, as a rule, produced but little benefit. In 18 cases of tuberculation no effect on the growth of the tubercles or on the general infiltration of the skin was produced. In 2 cases it was thought that the separation of necrosed bone was hastened. About half the cases were benefited. In about half the nerve was found enlarged, especially the median. The sciatic was never found thickened.

Dr. Rake concludes: 1. That the great sciatic is the most satisfactory nerve to stretch, for it is nearest the spinal ganglia and commands the supply of the whole leg and foot and the back of the thigh. 2. The chief indications for the operation are perforating ulcer, some cases of necrosis, and pain, whether associated with perforating ulcer or with peripheral neuritis without ulcer.

OTOLOGY.

UNDER THE CHARGE OF

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A New Form of Clinical Tuning-fork.

Dr. Clarence J. Blake has devised a new form of clinical tuning-fork (*Boston Med. and Surg. Journal*, Dec. 20, 1888). The value of the tuning-fork, as an instrument of precision, is lessened by the fact that not only the

intensity of its tone, but also its tone value may be varied by the means and the force setting it in vibration. These difficulties may be overcome by making a tuning-fork which will flare at the end of the tines, and be also weighted by this enlargement at the distal points of the prongs. Such a fork "is less productive of overtone, and by drawing the fork through the fingers, or through a small ring, from below upward, the pressure upon the inclined surfaces of the projections forces the tips of the tines together, and the release sets them in vibration with a definite initial excursion."

Dermal Casts of the Membrana Tympani in Phthisis.

Dr. H. L. Morse exhibited at the meeting of the Boston Society for Medical Improvement, Nov. 26, 1888, three casts of the membrana tympani (*Boston Med. and Surg. Journal*, Dec. 20, 1888). These casts consisted of the whole dermoid coat of the membrana, which had been removed entire from the ears of two phthisical patients. Dr. Morse had records of a number of other phthisical patients from whom he had removed similar casts of the membrana tympani. All of these patients had what might be termed well-marked physical signs of phthisis of a "rather low, mild form." In one of the cases the ear-disease antedated by three or four months the first symptoms of pulmonary disease.

Dr. Blake, in the discussion which followed, said, these casts will form and slowly or rapidly separate, according to the rate of progress of the tuberculous disease; indeed, the implication of the ear seems to bear a definite relation in its rate of progress to that of the progress of the disease in the lung. This mode of progress of this form of aural disease, commensurate with that of the simultaneous lung-disease, Dr. Blake suggested, may be due to the reflex relationship between the lung and the ear.

Dr. J. Orne Green was inclined to regard the disease simply as "desquamative inflammation," but not in any way of a reflex nature, nor specific in the phthisical. The designation "desquamative" is not an arbitrary one, but one proven by microscopic examinations by Wendt, of Germany, and accepted by a number of other German authorities. Since Wendt's time, Dr. Green is not aware that any one has attempted any microscopic investigation of the subject.

The Pathology and Pathogeny of Otitis Media Sclerotica.

Dr. Joseph Gradenigo, of the University of Padua, has investigated this most interesting and important subject, and communicates his results in the *Annales des maladies de l'oreille*, etc., Dec. 1888. He first gives the notes of the post-mortem examination in two cases of sclerosis of the middle ear. The lesions in these cases do not permit a formulation of a positive opinion upon the morbid process which produced them. The morbid changes are characterized by thinning of the mucous membrane, its fibrillar structure, and paucity of bloodvesels. But it cannot be positively decided yet whether these changes are primary or secondary. The absence of perivascular changes, thickening of the *tunica adventitia*, and the non-participation of the epithelium in the morbid process, argue against the latter hypothesis in the cases reported.

From the observations he has made, Gradenigo concludes that the bands and membranes found in the tympanic cavity in otitis sclerotica must not be regarded as neoplasms, but simply as remnants of the embryonal gelatinous tissue. Because it is in the partial persistence of just such a tissue that we should look for an important pathogenetic factor. It is also necessary to establish a sharp distinction between the different forms of adhesive processes in the ear, viz., between those secondary to otitis media purulenta and perhaps some forms of acute catarrh, and the adhesive processes secondary to otitis sclerotica and chronic aural catarrh in general. This, however, is not easy to do.

Synechiæ and adhesions occur only in the first form named above. In the various forms, however, of so-called dry catarrhal otitis, such formations cannot be due to inflammatory processes, as the latter cannot be found to have occurred at any time in their course.

Gradenigo does not admit the statement so widely made in the literature of this subject, that the tympanic cavity of the human fœtus is entirely filled with a mass of gelatinous tissue, since he has found a true tympanic cavity in the human embryo when only 4–4.5 centimetres long. Further researches confirmed the opinion that absorption of this gelatinous tissue is not directly connected with respiration. It is generally rapidly completed near the time of birth. Such absorption is due to some determining power of embryonal development. In guinea-pigs the gelatinous tissue is absorbed before birth; in cats, after birth, as a rule. The microscopic structure of the bands and membranes found in sclerosis of the middle ear shows it to be formed from remnants of this gelatinous tissue of embryonal life. "Since observations upon guinea-pigs and cats demonstrate that the absorption of this gelatinous tissue is an autogenetic process—that is, it is intimately connected with peculiarities of development of the animal—it is easy to perceive how heredity represents one of the most important factors in the etiology of *otitis sclerotica*." "It must be admitted that in a family all the children can have a persistence of this gelatinous tissue in the drum-cavity at birth, and hence there can be established in them a grave predisposition to sclerosis." The morphological element must not be disregarded in the pathogenesis of *otitis sclerotica*.

This paper is of the greatest interest and importance to all otologists, and deserves a careful reading.

Treatment in Cases where Symptoms point to Inflammation in the Mastoid Antrum and Mastoid Cells, but which do not call for an Artificial Opening in the Mastoid Process.

Under this title Dr. Henry L. Morse has presented a most valuable paper on an important subject before the Boston Society for Medical Improvement (*Boston Med. and Surg. Journal*, Dec. 20, 1888). The method may be thus recapitulated:

In acute inflammation of the intra-mastoid region with imperforate membrana tympani the order of procedure is paracentesis, inflation by Politzer's method or by the Eustachian catheter, and hot or cold applications *behind* the ear. Heat may thus be applied by means of a kidney-shaped salt-bag seven inches long, and cold may be applied by means of ice wrapped in

rubber cloth or by means of a Leiter's apparatus, which consists of a series of closely coiled leaden pipes, through which hot or cold water may be made to circulate. When acute inflammations occur with purulent or muco-purulent discharge, but with inadequate opening in the membrana tympana, a larger incision should be made in the membrane; then inflation, syringing through the Eustachian tube with weak solutions of bicarbonate of soda, and hot or cold applications over the mastoid.

When inflammation with purulent discharge occurs, and the posterior wall of the auditory canal bulges into the latter and nearly closes the passage, we should employ frequent and prolonged douching with warm water; free incision into the bulging wall of the canal and enlargement of the perforation in the membrana as soon as the swelling in the canal subsides sufficiently to permit getting at it; leeching behind the auricle, and, in the severer cases, a Wilde's incision, especially if fluctuation is felt. In chronic inflammation, when polypi are present, use the snare; and after removal of polypi employ the tympanic syringe for softening and removing cholesteomatous masses in the attic. Many of these forms of treatment, as Dr. Morse states, require the specially trained hand of an aurist, "but, on the other hand, some of them can be performed perfectly well by the general practitioner, and, if it so happen that he cannot call an aurist in consultation, it is far better, in my opinion, for him to try some of the methods I have mentioned rather than feel that if the patient has pain, tenderness, and swelling behind the ear, there is but one thing to be done, namely, to make an opening into the mastoid cells."

Thirty Cases of Resection of the Mastoid Apophysis.

Schmiegelow's article on this subject is reviewed in the *Nordiskt Medicinskt Arkiv*, 1888. The ages were as follows:

Under 1 year	3
From 1 to 10 years	5
" 11 to 20 "	6
" 21 to 30 "	12
" 31 to 40 "	3
" 41 to 50 "	0
50 "	1
	30

In twelve cases there were acute symptoms; in eighteen cases the inflammatory diseases in the mastoid were of a chronic form. Seven cases were subperiosteal abscesses simply. In the acute cases five were superficial caries, in five others the disease was limited to the interior of the mastoid cavity, in two of which sinuses developed, leading to openings in the cortex. In ten cases the mastoid cells were filled with pus, without breaking down of the osseous tissue.

Operation in these twelve cases affected the suppuration in the middle ear as follows: In nine cases, entire cure; in one instance the patient died on the seventh day; in one case the suppuration had not produced softening of the bone-structure.

Synopsis of the eighteen chronic cases shows that in eight instances the caries was very deep, being limited by the walls of the mastoid antrum. The apophysis was sclerosed in three cases. In one case a portion of the cochlea was thrown into the auditory canal. In six cases the caries had attacked the entire apophysis, excepting that the cortex was perforated by a fistula in only two of these six cases. In three cases there was found a central caries—*i. e.*, a caries covered by a cortex entirely sound, and not communicating with the middle ear. The effect of the operation on the suppuration of the middle ear in these chronic cases was, a cure in 56 per cent., and a continuation of the discharge in 44 per cent.

During the operation, in six cases the dura mater was visible at the bottom of the wound. In two cases abundant hemorrhage from the lateral sinus occurred. One of these patients died suddenly on the seventh day, in the midst of a perfect convalescence apparently. In the other five entire recovery took place. In one case a large epidural abscess was opened with success. In seven cases (23 per cent.) irrigation demonstrated a communication between the wound and the tympanic cavity. In the other twenty-three cases (77 per cent.) no such communication existed. One death occurred in the first seven cases; in the others three were cured, while the suppuration of the tympanic cavity continued in three. In the twenty cases without communication with the tympanum, eleven were cured as to the chronic suppuration from the drum-cavity, while in nine it continued. After the operation the treatment consisted in irrigation with bichloride solutions, after which the wound was packed with iodoform gauze and iodoform cotton-wool. As a rule, the dressings were changed every six or eight days. In two cases erysipelas developed. The cause of death, in the one fatal case, was attributed to embolism of the pulmonary artery, but could not be ascribed to the operation itself.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

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Primary Infectious Phlegmon of the Larynx.

Dr. Ernest Germonig, of Trieste, reports *Wien. klin. Woch.*, Dec. 6, 1888, the case of a woman thirty-seven years of age who took cold in washing the floors of a number of rooms. The patient was hoarse, and she had been unable to swallow water for three days; each attempt producing intense suffering, as could be seen by the painful contortions of her face. The pharynx was normal and so were heart and lungs. There were no glandular swellings. The temperature was 39° C. The epiglottis was enormously swollen and transformed into two tumors, from the centre of each of which a purulent

mass protruded. Cocainization and an attempt to press out the pus produced such immediate relief that the patient could readily drink some water and milk. The next morning she complained of intense pain in the right shoulder, and pyemic pleurisy and pericarditis soon followed. On the morning of the third day she died, consciousness remaining to the last. Thick green pus was found in the epiglottis extending through the entire submucous tissue to the cartilage. There was no other change in the larynx save redness. Purulent exudation was found in the pleuræ and pericardium; and the liver, spleen, and kidneys were swollen. No bacterial examination was made.

The Treatment of Chronic Pharyngitis.

In an admirable article by Prof. B. Fränkel, of Berlin (*Therap. Monats.*, Nov. 1888), stress is judiciously laid upon individualization of treatment to suit individual cases, instead of routine measures adopted for universal use. Thus treatment suitable for hypertrophic cases injures atrophic cases, and *vice versa*, while the management of the transitional stages demands an experienced judgment. Precedent disease of the naso-pharyngeal region and of the nasal passages requires topical treatment at the same time; and its relief by such measures is sometimes followed by spontaneous recession of the morbid processes in the oropharyngeal region. At the same time it is incorrect to attribute general pharyngeal catarrh to precedent disease of the nose and of the naso-pharynx, as has been so much urged by several American writers.

The first indication in treatment is that of the cause. Hence, obstructions in the nose must be combated to restore nasal respiration, and disorders of the mouth and teeth must be corrected. The surroundings of the patient must be modified when at fault, as well as any injurious avocation, habit, or mode of diet or of living. Proper clothing and underclothing are necessary to secure immunity from susceptibilities to cold. As to constitutional treatment, little is to be expected, but change of climate is often of great benefit.

Topical treatment is of chief importance, even in health resorts. The choice of topical agents, and the proper methods of employing them, are carefully detailed.

Hemorrhage of the Larynx in the Course of a Chronic Laryngitis.

Michael Pleskoff relates (*Münchener med. Woch.*, Dec. 4, 1888) an instance in a male teacher, forty-four years of age, who had had severe cough with expectoration for many years. The expectoration had been bloody on several occasions for two weeks. There was the ordinary diffuse redness of the vocal bands common to chronic laryngeal catarrh. In the region of the left vocal process near the ventricle was an elongated, submucous circumscribed blood-red patch covering half the breadth of the vocal band, evidently due to rupture of a bloodvessel. The treatment consisted solely in suppression of the voice; and the absorption of the suggillation ensued in three weeks.

Dr. Schede exhibited, Nov. 20, 1888, to the members of Aerztlicher Verein in Hamburg (*Münchener med. Woch.*, Nov. 27, 1888), a woman from whom he had removed the larynx, four and a half years previously, for carcinoma. Tracheotomy had been performed in April, 1884, and the laryngectomy in

the following June. In October a small recurrence in the cicatrix had to be removed. Since that time the patient had remained well, and was able to do her housework. She wore a Brun's chimney canula, and spoke with a distinct falsetto voice.

He reported, further, that his first case died of pneumonia thirty months after the operation, and there had been no recurrence—the patient had been able to resume fully his professional labors as a dentist; that a man fifty-five years of age, on whom he had operated, died one year later from a local recurrence; and another, aged sixty-five years, died two years after operation from an inoperable gland carcinoma of the neck.

Dr. Vincenzo Omboni relates in detail (*Annali Univ. di med. e Chir.*, Aug. 1888) a case of extirpation of the larynx, with the first wing of the trachea, a portion of the pharynx, and the cervical and a portion of the mediastinal portion of the œsophagus of a woman forty-six years of age with epithelioma. The operation occupied four and three-quarters hours; but was practically bloodless, owing to the use of about 150 ligatures and the liberal use of the thermo-cautery. The trachea was divided with the thermo-cautery in four-fifths of its extent, its lower portion secured to the inferior margin of the cutaneous wound, and the posterior fifth was then severed with the thermo-cautery. The patient did well for a time and wore an artificial larynx; but was attacked with erysipelas on the thirtieth day, and died eleven days later.

Tuberculosis of the Nasal Mucous Membrane.

Dr. Hajek reports (*Wien. klin. Woch.*, Dec. 6, 1888) the following instance: A gold-beater, aged thirty years, applied to Schnitzler with bloody discharge from the nose. An ulcer was seen in the cartilaginous septum, and a tumor in the naso-pharyngeal space. Hajek removed the growth with the snare, and found bacilli in an ulceration at its summit. He then cut large sections from the ulcerated tissue and found bacilli in their deeper portions. The parts were treated by scraping, followed by frictions with lactic acid. Complete cicatrization in five weeks. Return of patient four weeks later with a tumor the size of a hazel-nut obstructing the right nasal passage almost completely. Excision and frictions with lactic acid again successful. Several weeks later appeared some gray nodules, which were found to contain bacilli. This continuous recurrence renders the case of grave prognosis.

Diseases of the Nose and its Accessory Cavities as a Cause of Restricted Fields of Vision.

Dr. Ziem (*Berlin. klin. Woch.*, Sept. 10, 1888) refers to some instances of diminished field of vision due to intranasal diseases and to suppuration of the sphenoid cells, and of the maxillary sinus; one of the latter being reported in minute detail. He does not refer this condition to reflex influence from the nasal obstruction as many other observers have done, but to diminished aspiration of blood to the lungs and consequent disturbance in the venous and lymphatic circulation in the head and in the cerebrum. He is of the opinion that many other symptoms attributed to nasal reflex are to be similarly accounted for. He calls attention to glaucoma and to some other

ocular affections from the same cause, which are submitted to useless operations in consequence of a want of appreciation of their true pathology. The anatomical conditions upon which Ziem bases his opinions are fully described. Among the few cases detailed is one of glaucoma cured by trephining the antrum and evacuating the pus.

On Estimating the Sense of Smell.

Dr. H. Zwaardemaker, of Utrecht, describes and figures (*Berlin. klin. Woch.*, Nov. 19, 1888) a little apparatus for this purpose. It consists essentially of a small glass tube with a nozzle. This tube is covered with a tube of vulcanized rubber, or of ammoniated gutta-percha. As the latter is drawn away from the former its odor is appreciable. Having estimated the proper distance in a normal subject, the amount of ammonia is estimated by means of a scale scratched in the glass tubing.

DERMATOLOGY.

UNDER THE CHARGE OF

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The Question of the Contagiousness of Alopecia Areata.

Eichhoff's attention was directed (*Monatshefte für practische Dermatologie*, No. 20, 1888) to this question by the comparative increase in a period of some months of his cases of alopecia areata. While previously and subsequently his experience embraced four to six cases yearly, between April, 1884, and March, 1886—a period of two years—thirty-six cases came under his observation. An investigation of these cases led to the following:

1. In a given time there was a remarkable increase in alopecia areata cases, three to four times as many as the usual average.

2 About thirty per cent. were traceable to contagion (from barber-shop), and thirty per cent. were apparently of a common, and, therefore, probably contagious origin.

3. About nine per cent. could be attributed to neurotic causes.

4. In thirty-one per cent. no cause could be found.

The author concludes that alopecia areata may have different causes, two of which, the parasitic and the tropho-neurotic, may be said to be now known and generally admitted.

Cure of a Case of Leprosy.

In the case reported (*Monatshefte für praktische Dermatologie*, No. 23, 1888) by Dreckmann, the disease was fairly advanced, had lasted four years, and presented numerous nodes, tubercles, and patches of infiltration. There was also marked anæsthesia of the feet, legs, and hands. The mucous membrane was also involved; swelling of the conjunctivæ, a discharging ulcer in the nasal septum, whitish patches on larynx posteriorly, thickening of the left vocal cord, a small tubercle on the point of the epiglottis, and hard nodular infiltration of both tonsils. The patient, a Brazilian, aged forty-two years, was, at this time, thin, pale, and weak. The treatment, by means of pyrogallic acid, chrysarobin, and salicylic acid, together with the internal use of ichthyol, as suggested by Unna, was instituted, and finally, in the course of several months, all vestiges of the disease had disappeared, and the patient had grown stout and strong.

The pyrogallic acid was applied mainly to the hands, feet, and legs, in the form of a ten per cent. salve, the other parts with a salve of chrysarobin, same strength; these were applied twice daily. To obstinate nodules and patches of infiltration the same remedies were used in the form of plaster-mulls. To the face a salicylic acid and creasote plaster-mull was applied, once daily. Discrete and sharply circumscribed nodules, when conveniently situated, were excised. The conjunctival swelling disappeared spontaneously. The ulcer in the nose, the nodules on the tonsils, etc., were successfully treated with the actual cautery. The contitutional treatment consisted mainly in the administration of ichthyol, beginning with six grains daily, and gradually increasing to forty-five grains. Under the use of these measures, the writer states, an apparent cure resulted—the general health being restored, and all evidence of the disease dissipated.

[As incidental points of interest in the report, may be mentioned that the patient's wife had developed the disease eighteen years before; the wife's brother was also affected. The children, four in number, from fifteen to twenty-one years old, showed no sign of the disease. The patient's parents and six brothers, all living in the same neighborhood, were also healthy. —Eds.]

Syphilis and Eczema Seborrhoicum.

Unna, in an exhaustive paper, discusses (*British Journal of Dermatology*, Dec. 1888) the occasional complication of syphilis of the skin with his so-called eczema seborrhoicum. He concludes that the syphilitic exanthem is so complicated:

1. Wherever the separate spots of the exanthem are of very various sizes, confluent and not sharply contoured;

2. Wherever the papules are somewhat wanting in the specific syphilitic color, and look rather of a fresh, yellowish-red;

3. Wherever perfectly smooth papules are completely absent, but where, on the contrary, the greater part of those present are covered with scales and fatty crusts;

4. Wherever the papules are found arranged in serpiginously progressive circles and rings;

5. Wherever the peculiar yellow color of the seborrhoic process is present round about the papules, and especially in the centre of the serpiginous circles;

6. Wherever the exanthem is accompanied by eczematous appearances, oozing, heat, and tension;

7. Wherever it produces itching of greater or less intensity;

8. Wherever the syphilides occur on the confines between the forehead and hair, in the naso-labial furrow, on the sternum, between the shoulder-blades, or in the sacral region;

9. Wherever they are concentrated entirely, or, for the most part, in the hairy scalp, in the axillæ, on the mons, on the genitals, about the anus; in short, on the hairy regions or places of contact;

10. Wherever the exanthem exhibits an unusual obstinacy to constitutional treatment, whilst it at once improves, or even heals entirely under an anti-seborrhoic local treatment.

The practical deduction as to treatment from the foregoing is, that whenever the coexistence of a syphilide with a seborrhoic process, or wherever a purely seborrhoic eruption exists side by side with a syphilide, the treatment must consist from the very first in the local application of anti-seborrhoic remedies, such as resorcin, sulphur, etc., in conjunction with the general internal administration of mercury or iodine.

On the Treatment of Xanthoma.

In the *Berliner klinische Wochenschrift*, of December 10, 1888, Stern reports the removal of patches of xanthoma by means of an application of a solution of corrosive sublimate. The growths were seated at the inner canthus of both eyes, extending slightly along the upper and lower lids. These plaques were painted with a ten per cent. solution of corrosive sublimate in collodion, necessary precautions being taken to prevent the solution getting in the eyes. The parts painted became grayish and in a few days blackish; in a short time this was cast off, leaving a slight, superficial ulcer which rapidly healed. The author states that the result was all that could be desired, without the slightest retraction of the lids.

On the Dermatitis Herpetiformis of Duhring.

In a monograph republished from the *Annales de Dermatologie et Syphilographie* (January, February, March, April, May, July, and September, 1888), Brocq discusses the subject of dermatitis herpetiformis at great length. As precursory to an exhaustive consideration of the disease from his own standpoint, Duhring's ideas are presented and his cases fully quoted. While disposed to admit the existence of a special affection having the characters peculiar to "dermatitis herpetiformis," the author would regard this term as generic, including under it several distinct varieties.

His conclusions on this point are as follows: 1. The impetigo herpetiformis of Hebra constitutes a distinct morbid entity and cannot be included in the dermatitis herpetiformis of Duhring. 2. The dermatitis herpetiformis of Duhring should be understood as a generic name serving to designate an ensemble of cases having characters in common but which can be grouped

in several distinct classes. 3. One of these classes is clearly defined by the cases reported by Duhring, and may be designated by the name "chronic pruriginous polymorphous (or multiform or pemphigoid) dermatitis with successive outbreaks." 4. Herpes gestationis constitutes a second very distinct class bordering upon the preceding—between these two types exist transitional cases. The name "recurring pruriginosus polymorphous (or multiform or pemphigoid) dermatitis of pregnancy" seems appropriate to this class. 5. Certain cases described under the name of pemphigus, and in particular under the name of pemphigus pruriginosus, ought to be placed in one or the other of the two preceding classes. 6. Some reserve is necessary upon the subject of certain other cases which Duhring thinks should be classified as dermatitis herpetiformis. 7. Under the names herpes phlyctenoides (Chausit and Gibert), vesicular and bullous hydroa (Bazin), pruriginous hydroa, herpetiform hydroa (Tilbury Fox, Colcott Fox, Bulkley, G. H. Fox, Crocker, Elliot), there have been described cases of "chronic pruriginosus polymorphous dermatitis herpetiformis with successive outbreaks," cases of herpes gestationis, and cases which approach these morbid types by the form of the eruption, by their intense subjective phenomena, but which differ from them in their etiology and rapid evolution. These cases which Duhring has placed in his dermatitis herpetiformis, but which he has, like the preceding authors named, wrongly confounded with the other morbid entities which have been above given, should be the subject of new research. It is impossible in the present state of our knowledge to make a well-defined clinical type or group of them, but the author thinks that such cases should be placed in a third class. He acknowledges, however, that these cases border very closely on the class "chronic polymorphous pruriginosus dermatitis with successive outbreaks," and that between these two classes there are connecting transitional cases. While stating that there is as yet insufficient foundation to consider such cases as constituting the acute form of chronic pruriginous polymorphous dermatitis, still they may provisionally be grouped as such a class.

The author, in conclusion, states that excepting those which should be eliminated these cases constitute two totally distinct groups: "1. The impetigo herpetiformis of Hebra of which we have given a succinct description and which we will leave completely aside. 2. A large class of affections characterized by polymorphous eruptions, figurate, nonfigurate erythematous, erythemato-papular, papular, papulo-vesicular, vesicular, vesiculo-bullous, bullous and pustular, accompanied by constant painful phenomena such as sensations of smarting, burning, intense pruritus and by an evolution of successive outbreaks. We will give these cases the name of *dermatitis*, a vague word which signifies simply inflammation of the integument, and not that of erythema which seems to us should be reserved exclusively for fugacious eruptions characterized by a simple redness of the skin; we add thereto: *a.* The term *polymorphous* or *multiform*, in order to designate better the nature of the eruption, but we would also willingly adopt that of vesiculo-bullous or pemphigoid. *b.* The term *pruriginous*, in order to designate the importance and constancy of the subjective symptoms.

This pruriginous polymorphous dermatitis thus understood is only a "syn-

drome;" the cases which enter therein can be divided into three principal groups:

1. Pruriginous polymorphous dermatitis with successive outbreaks, comprising: *a.* Chronic cases of very long duration which seem to constitute a well-defined morbid entity—chronic pruriginous polymorphous dermatitis. *b.* Cases of shorter duration terminating in recovery after an evolution of several months—subacute or benign pruriginous polymorphous dermatitis; this is only a simple variety of the preceding.

2. Acute pruriginous polymorphous dermatitis—the relations of which with the affections until now described under the names of vesiculo-bullous polymorphous erythemata, are of the closest kind and which constitute an ensemble of badly defined cases in which we cannot as yet distinguish very clear clinical types.

3. Recurring pruriginous polymorphous dermatitis of pregnancy (herpes gestationis), constituting a well-defined morbid type.

Finally, between each of these three principal groups, exist numerous transitional cases which seem to establish close bonds between them.

Form of Eruption Allied to Kaposi's Disease and to Prurigo Æstivalis Adolescentium (Hutchinson).

In the case described by Hutchinson (*British Medical Journal*, December 22, 1888), the eruption consisted of "vesications" on the face, ears, backs of the hands, and at times sparingly over the entire body. The lesions ulcerated and left scars. It had begun at the age of two and persisted to the age of twenty, showing throughout its course a remarkable tendency to relapse in summer, and to disappear or remain in abeyance in winter. The health had never been affected, and the severity of the disease became less and less from year to year and finally disappeared. The scarring left was similar to that following severe smallpox. The affection differed from Kaposi's disease (angioma pigmentosum et atrophicum) in that there was no tendency to freckles or stigmata. Other members of the patient's family, several in number, showed no evidence of the disease.

Circumscribed Sclerodema (Addison's Keloid), with Remarks upon the Etiology of the Disease.

Biss reports (*British Medical Journal*, December 22, 1888) a case of circumscribed sclerodema (morphœa). The patient, a girl of fifteen, showed a whitish indurated patch on the right arm beginning just above the elbow, and following roughly the course of the musculo-spiral nerve. It had begun four years previously. There was muscular atrophy, but no loss of sensibility in the affected area. The patient was also subject to congenital stenosis of the pulmonary artery, which was supposed to be due to intra-uterine endocarditis of rheumatic origin. The coincidence of rheumatism and valvular lesions with this disease has, as the author states, been noted by others. The asymmetry of the lesion, its correspondence with the course of the musculo-spiral nerve, the wasted muscles being those supplied by the nerve and its branches, seemed to point toward a neurotic cause.

In the discussion, Hutchinson remarked that he did not believe that there was any connection between this disease and rheumatism, nor that it began in connection with any special exposure, but he was inclined to ascribe the lesion to some central influence brought to bear on the vasomotor nerve.

OBSTETRICS.

UNDER THE CHARGE OF

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The Death-rate and Temperature-rate of Modern Antiseptic Obstetrics.

Ahlfeld (*Centralblatt für Gynäkologie*, No. 46, 1888) finds that usage in maternities, where antisepsis is most strictly enforced, fixes 100° Fahr. as the temperature limit for the normal puerperal period. Taking seven well-conducted maternities, he finds that the percentages of patients whose puerperal periods were normal, ranged from 64 per cent. to 78 per cent. Winckel, in his recently published *Lehrbuch der Geburtshülfe*, considers this percentage from 71 to 76 in the best practice; in both maternities and private houses septic mortality should not exceed 0.25 per cent., and morbidity 15 to 20 per cent., taking 100° Fahr. as the limit of normal puerperal temperature. Schauta, however, reports 1415 confinements at Innsbruck, with $93\frac{1}{10}$ per cent. normal puerperal periods, and, at times, this percentage rose to $99\frac{4}{10}$.

The sanitary conditions of the various maternities may explain variations in the percentages of normal puerperal periods, but the general reduction of mortality and increase in recoveries must be attributed to antisepsis.

A Nurse's Outfit for Obstetric Antisepsis.

Lochner (*Münchener med. Wochenschrift*, No. 46, 1888), in a recent discussion upon rules for antisepsis for nurses, proposed by Winckel, expressed his belief that the hand-bag carried by an obstetric nurse should be of a material which could be boiled. He thinks bichloride of mercury a dangerous substance to give to nurses, and uses a solution of carbolic acid. He prefers wood-wool as a dressing for the cord because it allows air to permeate readily and absorbs moisture.

Ahlfeld (*Deutsche med. Wochenschrift*, No. 47, 1888) describes a leather bag, for obstetric nurses, weighing, with its contents, between nine and ten pounds. It contains a metallic irrigator; a bottle of liquid carbolic acid and measuring glass; tampons of sterilized cotton and iodoform gauze inclosed in impervious paper, to be opened only when used; a minute-glass, to count the pulse, heart-sounds, and respiration; rubber sheeting three feet square; glass irrigator points or canulæ, for the vagina and rectum; nail-brush; scissors

for the finger-nails, scissors for the cord; vaseline and Hoffmann's anodyne; a bath thermometer and a fever thermometer, in cases; a female silver catheter, an English catheter; a breast pump and nipple-shield; a dressing for the umbilical cord, and a syringe for use with infants.

This costs, at Marburg, between six and seven dollars (thirty-three marks). The sides of the bag let down, and it may be emptied and thoroughly scrubbed.

Erysipelas and Measles Complicating Pregnancy and Parturition.

Cohn (*Centralblatt für Gynäkologie*, No. 48, 1888) reports a case of erysipelas upon the face and head complicating pregnancy at eight months. Premature labor ensued; the fœtus exhibited upon the corresponding portions of the head and face an œdematous, deep red swelling which gradually faded, followed by desquamation. Examination of these infiltrated tissues for erysipelas cocci gave negative results. The child died at three weeks; the cause of death was found to be multiple abscess in the kidneys and purulent cystitis; the other organs were healthy. The mother recovered.

[The editor recalls a case of erysipelas of the face and head, with premature birth; the fœtus bore no visible mark of infection, the skin was normal in appearance. Prolonged cellulitis in the mother's pelvis resulted. The fœtus died soon after birth. Runge, Kaltenbach, and Stratz have reported cases of maternal erysipelas, manifested in the fœtus by tardy desquamation; the interest in Cohn's case lies in the presence of the exanthem at birth.]

Schramm (*Ibid.*) reports a case of measles at eight months pregnancy; premature labor resulted, the child dying soon after birth; no evidence of the communication of the disease from mother to child existed. The mother recovered after a severe illness; purulent otitis being a sequela of measles.

The Treatment of Fibro-myomata Complicating Pregnancy and Parturition.

Phillips (*Practitioner*, December, 1888) has collected 264 cases of fibro-myomata complicating labor, to which he adds 18 cases. The more radical modes of treatment are attended by a high death-rate; Cæsarean section from 84 to 69 per cent. mortality in these cases; Porro operation, 69 per cent.; Müller's ablation, 35 per cent.; myotomy, 40 per cent.; and craniotomy 52 per cent. The mortality of version and forceps ranged from 66 to 26 per cent., the forceps having a lower mortality rate than version.

During pregnancy fibro-myomata may cause severe pain, progressive emaciation, irrepressible vomiting, excessive distention of the uterus, hemorrhage, and symptoms caused by pressure. The methods of treatment available are induction of labor, reposition of the tumor, myotomy, and Müller's ablation; each case must be treated upon its own indications.

During labor, fœtal malpresentations, placenta prævia, premature rupture of membranes, prolapse of the cord, and rarely uterine rupture may be caused. Fibro-myomata are often replaced in the abdomen spontaneously as labor progresses; forcible reposition is dangerous; hydrostatic pressure has been occasionally employed to replace a tumor, with good results. When fibroids

are cervical they may often be successfully enucleated during labor—through the vagina; 9 cases are mentioned, all recovered. Placenta prævia may be caused by fibroids; 6 deaths in 9 cases are reported. Interference after labor depends upon the condition of the patient, the situation and condition of the tumor, and the severity of the operation required. Accessible and pediculated fibroids may be removed to advantage after labor. Hemorrhage and septic infection are the dangers most threatening. As a rule, fibroids disappear during uterine involution.

A Case of Uterine Fibroma Complicating Labor.

Turgard (*Annales de Gynécologie*, December, 1888) reports the case of a multipara in whom no tumor was discovered during pregnancy; face presentation existed, which was converted to occipital by manipulation. At labor, descent failed; a semi-elastic tumor, as arge as a man's fist, lay in the hollow of the sacrum. Forceps were applied to the head and entrusted to an assistant; puncture with a fine trocar having failed to lessen the size of the tumor, two fingers of one hand were inserted in the vagina, two fingers of the other hand in the rectum, the tumor was pushed up, while the assistant brought down the head by forceps. Easy delivery, and normal puerperium followed; the tumor disappeared with uterine involution.

Subperitoneal fibroids are most likely to remain undetected during pregnancy, as they frequently occasion no symptoms. Diagnosis may be made difficult by softening in the tumor, which accompanies the growth of the uterus. Spontaneous version occasionally happens.

The Induction of Labor by Hydrostatic Pressure.

Champetier de Ribes (*Annales de Gynécologie*, December, 1888) has devised a rubber bag which can be distended to the size of the fœtal head, firmer in texture than Barnes's and Tarnier's dilators, and attached to a supply tube. When fully distended, balloon and tube form a cone, the base of which is in the lower uterine segment. It is introduced by a curved forceps, the operator guiding it by his hand in the vagina. Several quarts of one per cent. carbolic acid solution were used in distention; vaseline, carbolated or borated, was employed as a lubricant. When fully distended, this apparatus is as inelastic as a fœtal head, and rapidly provokes uterine contraction; when partially filled its action is more gradual.

It was employed in 18 cases, 14 of which had contracted pelvis of minor grade. Spontaneous expulsion of the balloon occurred in less than 12 hours; labor terminated spontaneously soon after, or was easily completed through the dilated birth canal.

Rupture of the Symphysis Pubis during Labor.

Dührssen (*Centralblatt für Gynäkologie*, No. 49, 1888), at a meeting of the Obstetrical Society of Berlin, reported a case of rupture of the symphysis pubis caused by the shoulders of an unusually large female child. The breadth of the shoulders was 6.6 inches. Although the pelvis was immobilized and no general septic infection occurred, suppuration in the joint en-

sued. The abscess was opened, and under antiseptic treatment recovery followed; the joint surfaces united firmly. When general septic infection is present, suppuration of the symphysis is a dangerous complication; when infection is localized in the joint and pus is evacuated, a better union results than when no suppuration occurs.

OLSHAUSEN raised the question as to whether previous disease of the pelvic joints had not existed. There is no doubt, however, that healthy joints separate occasionally.

MARTIN had seen two cases, in the first of which rupture of the symphysis pubis and sacro-iliac synchondroses occurred at the passage of the shoulders through a moderately contracted pelvis; the shoulders were unusually large. The patient died of diphtheritic endometritis, the ruptured joints were found to have suppurated. In the second case rupture of the symphysis occurred during forceps delivery. Suppuration and spontaneous evacuation of pus followed; the patient made a tedious recovery.

GUSSEROW thought that unusual mobility of the joints might exist giving rise to a mistaken diagnosis of rupture. He had observed so high a degree of mobility that locomotion was impossible, with but moderate pain; the patient made a good recovery. This condition may predispose to rupture.

In conclusion, DÜHRSSEN believed that violent leverage-movements with forceps might rupture the symphysis. He recognized the predisposing influence of excessive relaxation, occasioned by previous difficult labors. He was convinced of the favorable prognosis of suppuration in the symphysis, without general infection, under surgical treatment.

MODERN EMBRYOTOMY.

POTOCKI (*Thèse*, Paris, 1888) writes exhaustively on the operation of embryotomy, as performed at present. In 32,938 births at the Maternité and Lariboisière there occurred 151 cases of shoulder presentation terminated in 119 cases by version; in 12 by embryotomy; in 20 by spontaneous evolution; in shoulder presentations about 1 in 4 is neglected, and demands embryotomy. He prefers Tarnier's instrument, which resembles Braun's hook, carrying a cutting blade. He reports 19 embryotomies, with 6 deaths, 1 of which was caused by the instrument.

THE TREATMENT OF EXTRA-UTERINE PREGNANCY.

The literature of this subject is becoming so extensive that space will admit of a succinct epitome only. Winckel's morphia treatment has been exemplified by GOSSMAN (*Münchener med. Wochenschrift*, No. 50, 1888), who reports a case of left tubal pregnancy ten weeks advanced, diagnosticated by the presence of a tumor, pain, hemorrhage, and the escape of decidua. Injections into the tumor through the abdomen of $\frac{9}{10}$th grain of morphia, repeated every fourteen days, resulted in the cessation of symptoms, diminution of tumor, and recovery. But one attack of pain occurred after the treatment was begun. This treatment is advised in very early pregnancy only.

VEIT (*Centralblatt für Gynäkologie*, No. 48, 1888) reports a case of double salpingitis, with total occlusion of the left tube, and lodgement of a fecundated

ovum in the right tube, producing tubal pregnancy; extirpation was performed for pain, hemorrhage, and tumor, successfully.

OLSHAUSEN (*Ibid.*, No. 49, 1888) reports a case of missed labor (fourteen months pregnancy) in which a dead fœtus at term was removed from the remains of the right tube; the sac was adherent to mesentery and intestines; recovery followed. Also, an abdominal pregnancy without sac, in which the fœtus, living and near term, lay free in the abdominal cavity. Pregnancy originated in the right tube, which burst six days before the operation without severe bleeding. Placenta and membranous fragments were removed; mother and child recovered.

BRÖSE (*Ibid.*) reports an extra-uterine pregnancy, in which laparotomy was done for pain, hemorrhage, discharge of decidua, and peritonitis. A macerated fœtus was removed from the sac; the placenta removed from Douglas's cul-de-sac, and the sac (which lined the pelvis) tamponed with iodoform gauze; adhesions were recent and abundant; recovery followed.

DÜHRSSEN (*Ibid.*) operated for extra-uterine pregnancy at seven months, for the relief of ileus caused by pressure of the fœtus on the intestine. No sac was found; the fœtus lay amid the intestines, with many adhesions The rectum was compressed by the fœtal tumor. Profuse hemorrhage, and death in collapse followed the removal of fœtus and placenta; adhesions were ligated; iodoform gauze was used as tampon. Two cases of ileus caused by extra-uterine pregnancy, reported by Chevallier and Bouilly, ended fatally.

MEYER (Copenhagen) reports, in *Hospitals Tidende*, No. 30, 1888, a case of tubal pregnancy at fifteen weeks, with pain, hemorrhage, escape of decidua, and recurring peritonitis; fœtus and appendages were removed by laparotomy. Obstinate hemorrhage was checked by irrigation with boric acid solution at 122° F., and iodoform gauze tampon. Recovery followed.

FRACTURES OF THE SKULL IN INFANTS.

HENOCH (*Berliner klin. Wochenschrift*, No. 29, 1888) reports two cases of fracture of the skull in infants, followed by meningocele, encephalitis, and death. Both children were seized with convulsions when four weeks old, one lived to be five, the other three months old. In one case puncture and evacuation of the tumor were unsuccessfully performed. Although no history of violence at birth was obtained, Henoch considered both cases instances of fracture of the skull, probably at birth, with inflammation and adhesion of the meninges, absorption of the bony walls of the cranium, and the formation of meningocele.

The apertures in the skull were large enough to permit evident pulsations of the brain through the opening; the cases are rare examples of the effects of injury to the fœtal skull.

A CASE OF AMELUS.

CHALMOGOROFF (*Centralblatt für Gynäkologie*, No. 50, 1888) reports the birth of an amelus in the Moscow maternity. The mother had previously borne two well-formed children. The amelus was a male and was totally lacking in limbs, not even rudimentary legs and arms being present; it was stillborn. Such a fœtus is extremely rare; the limbs are supposed to have been amputated early in embryonic life by amniotic bands.

GYNECOLOGY.

UNDER THE CHARGE OF

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The Enucleation of Submucous or Intramural Myomata by Laparotomy.

Fränkel (*Archiv für Gynäkologie*, Bd. xxxiii. Heft 3) contributes an elaborate paper on this subject, arriving at the following conclusions:

1. Enucleation of fibroids of the corpus uteri should only be attempted when we are confident that the operation can be completed. The prognosis is favorable if the tumor is not too large and does not project too far toward the exterior of the uterus, and the cervix is well dilated.

2. In the case of larger, single subserous fibroids, where the cervix is long and rigid, it is better to enucleate the tumor according to Martin's method. If after opening the abdomen a number of small tumors are found, supravaginal amputation should be performed.

3. Fibroids which protrude from the cervix may be shelled out through an incision in the wall of the uterus, the cervix being temporarily constricted with a rubber cord, the case being treated as if it were one of ordinary Cæsarean section, or, if there are multiple fibroids, the entire mass may be amputated as before.

4. Sloughing fibroids should be removed completely per vaginam; partial removal is to be condemned.

5. Sloughing, submucous fibro-myomata should be treated by supravaginal amputation of the uterus, the stump being secured outside of the peritoneum.

6. Sloughing tumors which protrude into the vagina, but are too large to be enucleated through this canal, should be removed with the uterus as before.

The Surgical Treatment of Retroflexion with Fixation.

Bode (*Centralblatt für Gynäkologie*, January 19, 1889) proposes to approximate the fundus uteri to the abdominal wall, after separating the adhesions, by shortening the round ligaments within the abdominal cavity. His method is as follows: After the uterus has been replaced, the round ligament on one side is picked up at a sufficient distance from the cornu to take in the "slack" of the cord, and is transfixed with a needle carrying a silk suture; the suture is then passed through the cornu at the point of origin of the ligament, thus taking a reef in the latter sufficient to exert such traction upon the fundus uteri as to keep the organ in a position of anteversion. The writer does not favor Sänger's method of ventro-fixation, since the uterus is placed under abnormal conditions. In his experience the patients suffered dragging pains in the cicatrix, which are absent when the modification of the Alexander-Adams

operation, that he proposes, is adopted, although the fixation under the former method is doubtless more permanent. He expects to publish his results, which have been successful. [DR. W. GILL WYLIE, of New York, has proposed and practised a similar method of shortening the round ligaments within the abdominal cavity, by folding them up and suturing the folds together at a short distance from the uterus.—ED.]

THE SEPARATION OF PERITONEAL ADHESIONS, AFTER SCHULTZE'S METHOD.

REICH (*Ibid.*), replying to a criticism by Zeiss, reaffirms his opinion that before any radical operation is performed for the cure of retroflexion with fixation, an attempt should be made to separate the adhesions by manipulation. Gynecologists have not given this method a fair trial.

GOTTSCHALK reports in the same journal three cases in which he replaced the adherent uterus in this manner. He thinks that it is better not to attempt to separate all the adhesions the first time, but to detach a few bands, and then to wait three or four days before repeating the manipulation. In one instance the patient, after the second *séance*, had severe abdominal pain and some rise of temperature, but no bad effects followed and she was allowed to leave her bed on the eighth day.

The writer believes that if this gradual method of separating adhesions was generally adopted, laparotomy for this purpose would be performed much less frequently. The interval between the *séances* varies according to the amount of disturbance caused by the manipulation; three days is the usual time. The patient should always be fully anæsthetized.

THE INFLUENCE OF MALARIA ON THE UTERUS.

LARDIER (*Lyon Méd.*, July 22, 1888), as the result of a large number of observations, claims that malaria is a direct cause of menorrhagia. Moreover, he has observed daily hemorrhages which showed a certain periodicity, recurring in one instance every evening at the same hour. Quinine had a marked action in these cases. The hemorrhages sometimes reappeared in early pregnancy, then ceased, to return during the puerperium.

FARADISM IN HYSTERIA.

DIDIER, (*Lyon méd.*, July 8, 1888) arrives at the following conclusions with regard to the value of this agent:

1. The faradic current is the best means for warding off, or cutting short, an hysterical attack. It is less reliable in hystero-epilepsy.

2. By this agent one can distinguish between true epilepsy and hystero-epilepsy, the latter ceasing on the application of the current.

3. If both conditions are present in the same individual, the true can thus be distinguished from the spurious attacks.

4. At the beginning of the attack, one electrode should be applied to the pit of the stomach and the other over the neck, a current of moderate inten-

sity being employed. During the attack one pole is to be placed on the neck and the other in the hand, or one in each hand.

5. Faradism, aside from its abortive action, has a positive beneficial effect upon the malady.

Amputation of the Cervix Uteri for Cancer.

Verneuil read an interesting paper before the Paris Surgical Society in October (*Annals of Gynecology*, January, 1889), showing the results of all his operations up to date. Previous to 1884 he had operated upon seventeen patients, each of whom survived an average of twenty-three months after the operation. During the four years subsequent to that period he had had five cases, each patient living an average of twenty-nine months. In nine of these twenty-two cases there was a recurrence of the cancer in the cervix, while in twelve the cervix remained absolutely free from disease, although one patient was under observation for seven years.

The writer lays especial stress upon what he terms "ganglionic recurrence,' or subsequent development of the disease in the peri-uterine tissues, which is "beyond the reach of the surgeon." He had two deaths, one from peritonitis, due to accidental opening of the peritoneal cavity before the days of antiseptic surgery, and the other from septicæmia, resulting from the leaving in the vagina of a tampon that had been introduced without his knowledge. In one instance there was an error in diagnosis, the condition not being malignant. *Apropos* of this case, he cites one in which he examined a uterus that had been removed per vaginam as cancerous, when it was only the seat of chronic metritis.

Verneuil employs the "linear écraseur," splitting the cervix first. He thinks that partial hysterectomy by this method is such a simple and bloodless operation, the mortality of which is *nil*, that it should be preferred to total extirpation.

The Treatment of Imperforate Vagina with Rudimentary Development of the Uterus by Laparotomy.

Sutton (*Ibid.*) reports the case of a girl, twenty-two years of age, who had never menstruated, but suffered every month with severe pain in her back and abdomen accompanied with nausea. She was very despondent, and was willing to submit to any operation that promised relief. On examination neither the uterus nor the ovaries could be felt. Through the speculum no cervix was visible, but there was a small opening in the vaginal roof that admitted a probe to the depth of an inch and a quarter. Laparotomy was performed, and a rudimentary one-horned uterus was found, the right tube and ovary being normal; ripe ovisacs were present on the surface of the gland. The left ovary, tube, and broad ligament were absent. Slight pelvic peritonitis existed, especially on the right side, attributable to the rupture of the follicles and the discharge of the ova into the cavity. The patient's convalescence was normal.

The writer stated that he had met with several similar cases, but had never before been able to relieve the patient. He would in future always resort to laparotomy.

Modifications in the Technique of Alexander's Operation.

Kellogg (*Ibid.*) mentions briefly certain improvements which he has introduced. He now makes a very small external incision (never longer than an inch, often less). "The opening through the roof of the canal is a mere puncture with the point of the scalpel, not more than one-fourth of an inch in length;" into this he introduces a strabismus hook, and pushes it down to Poupart's ligament, then, when it has almost reached the floor of the canal, he turns it toward the median line and raises it up, at once bringing the ligament into view. By adopting this method the tissues are only slightly injured, and the operation is rendered so simple that the writer performs it under cocaine anæsthesia, having used ether in only three of his last forty cases. To obviate sloughing of the redundant portions of the ligaments, he ties the ends together over a leaden plate. Two silver wire sutures are ordinarily used on each side, including the skin, fascia, tendon, and proximal portion of the ligament; it is important to employ wire if ether is administered, in order to support the strain to which the cords are subjected during vomiting.

Vaginal Alimentation.

A recent writer in the *Weekly Medical Review* calls attention to the absorptive power of the vaginal mucous membrane, so that this canal may be utilized when food cannot be taken by the mouth. Vaginal may be employed to supplement rectal alimentation, or the former may be relied upon alone. The food must be digested thoroughly before it is injected. The vagina is more tolerant of food than the rectum, so that vaginal alimentation may be continued for an indefinite period.

The Perineum.

Marcy contributes a lengthy paper to the *Amer. Journ. of Obstetrics* for January, 1889, in which he reviews the anatomy and physiology of the perineal body and pelvic floor, the injuries which they may receive during parturition, and the various operations that have been practised for their repair. The following original features are claimed for the operation devised by the author:

The posterior wall of the vagina is dissected away from its vulvar attachment, and the flap is held upward, while the separated fibres of the levator ani muscle and the posterior vaginal fascia are united by continuous buried sutures of kangaroo tendon, the cobbler's stitch being used. Two sets of sutures are introduced, the deeper ones including the muscles. The superficial wound is also closed by a continuous buried suture, and is covered with iodoform collodion. The parts are kept in close apposition, and the strain relieved by means of safety-pins of a peculiar shape, which are inserted external to the sutures. The same plan is followed in complete ruptures, the rectal and vaginal edges being previously united by buried sutures.

Psychoses and Gynecological Operations.

Fillebrown, in the same journal, concludes an article on this subject as follows: Psychoses may result from gynecological operations in patients with-

out hereditary predisposition. In these cases the prognosis is good. If the mental trouble does not appear within four months after the operation, it probably has no connection with it. In the majority of these cases the convalescence is abnormal. The fact that a patient is predisposed to a certain psychosis ought not to be regarded as a contra-indication to an operation. If she is actually insane, a gynecological operation should only be performed as a final resort. In recording the history of an operative case particular attention should be paid to the family history, with the view of discovering a possible hereditary taint.

The Influence of Removal of the Uterus and its Appendages on the Sexual Appetite.

Tait (*British Gynecological Journal*, November, 1888) cites a number of cases in which not only oöphorectomy, but hysterectomy, had been performed without diminishing the sexual appetite. In several women it was actually increased. The most striking evidence that the ovaries had no influence upon it was shown in the case of virgins who were operated upon when young, and afterward married and developed a full capacity. Seven cases are cited. In the discussion of the paper the consensus of opinion was on the side of Mr. Tait.

Vicarious Menstruation.

Parsons (*Ibid.*) reported the case of a healthy young woman, aged nineteen, who had never menstruated, but had severe epistaxis at irregular intervals. Treatment, both medicinal and electrical, was of no avail.

In the discussion on the paper, Dr. Bantock affirmed that he believed in vicarious menstruation, and cited cases. Dr. Heywood Smith suggested the term "alternating," as more appropriate than "vicarious," menstruation. Mr. Tait had never been able to find but one authentic case himself; while he did not deny that the condition might exist, he thought that medical students ought not to be taught that epistaxis in young women was a common expression of vicarious menstruation.

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